



AlliedSignal Inc.  
Law Department  
P.O. Box 2245  
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(201) 455-2817

3HW11  
called 8/5/94 7-0531

Post-It™ Fax Note	7671	Date	8/5	# of pages	2
To	Joan Armstrong	From	David Lake		
Co./Dept.	EPA	Co.	AlliedSignal		
Phone #	0531-11	Phone #			
Fax #	(215) 597-9890	Fax #			

VIA CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

August 5, 1994

Ms. Joan Armstrong (3HW11)  
U.S. Environmental Protection Agency  
841 Chestnut Building  
Philadelphia, PA 19107

328727

ORIGINAL  
(Red)

RE: Hanlin-Allied Site  
Moundsville, WV

Dear Ms. Armstrong:

Confirming my telephone conversation with you, AlliedSignal Inc. ("Allied") hereby supplements its response to the Section 104(e) Request for Information regarding this Site.

Allied has located in its files no information responsive to Questions # 6, 7 and 9 as they apply to that portion of the Site currently owned by Hanlin Chemicals, West Virginia. However, kindly refer to the enclosed documents labeled "Hanlin Documents." These were prepared by Hanlin at our request, and we submit them to you in good faith but do not vouch for their accuracy or completeness. Regarding Question # 9, the four studies identified by Hanlin are not in Allied's possession and are not currently in Hanlin's possession. However, we are informed by Hanlin that it expects to receive copies of those studies and forward them to us shortly. When that occurs, we will prepare an additional copy of each and send it to you.

Regarding Question # 8, Allied has supplied EPA with all responsive information that it has been able to locate.

Regarding that portion of the Site now owned by Olin Corporation, we submit the following additional responses:

Question # 1 Allied began operating at the North plant on or shortly after 1953. That plant was sold to Olin Corporation on or about October 26, 1981.

Questions # 2-3 See original answers.

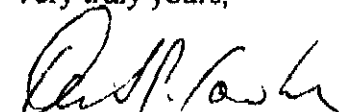
**ORIGINAL  
(Red)**

Question # 4 Allied produced toluene diisocyanate aniline, methylene dianiline, fumeric acid, malic acid, maleic anhydrite, toluene dianiline acid, and possibly other substances including maleic acid. Detailed information and records are not available, plant records having been transferred to Olin Corporation at the time of its purchase of the plant.

Question # 5-10 Please refer to the enclosed documents labeled "North Plant documents."

Please feel free to call me if you have any questions.

Very truly yours,



David P. Cooke  
Assistant General Counsel

Enclosure

c: Christina M. Valente, Esq.



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QUESTION 6 - BY-PRODUCTS AND WASTES PRODUCED THROUGH THE OPERATIONS ORIGINAL  
(Red)

- A. Chlorinated Still Bottoms - This liquid material was the heavy ends from the carbon tetrachloride distillation column. Approximately 3,000 gallons/month were generated. Chemical composition follows:

carbon tetrachloride	1.0
trichloroethylene	10.0
trichloroethane	32.0
tetrachloroethylene	11.0
tetrachloroethane	28.0
pentachloroethane	18.0
HCl	0.8

- B. CMP Sludge - This solid material was generated during cleaning of processing equipment in the chloromethane plant. Approximately 10,000 gallons/year were generated. Chemical composition follows:

sodium hydroxide	1.0
calcium carbonate	20.0
methylene chloride	14.0
chloroform	16.0
carbon tetrachloride	13.0
inert material/moisture	residual

- C. CMP Spent Sulfuric Acid - This liquid material was generated in the chloromethane plant. Approximately 9,000 gallons/week were generated. Chemical composition follows:

sulfuric acid	70.0 - 75.0
dimethyl ether	0 - 7.1
methanol	0.6 - 1.0
methyl hydrogen sulfate	4.5 - 20.0
dimethyl sulfate	0 - 0.5
methylene chloride	0.1 - 0.3
chloroform	0.3 - 0.5
carbon tetrachloride	0.1 - 0.3
water	residual

- D. Spent Dryer Residue - This solid material was a mixture of activated carbon and potassium carbonate contaminated with chlorinated organics. Approximately 16,000 gallons/year were generated in the chloromethane plant. Chemical composition follows:

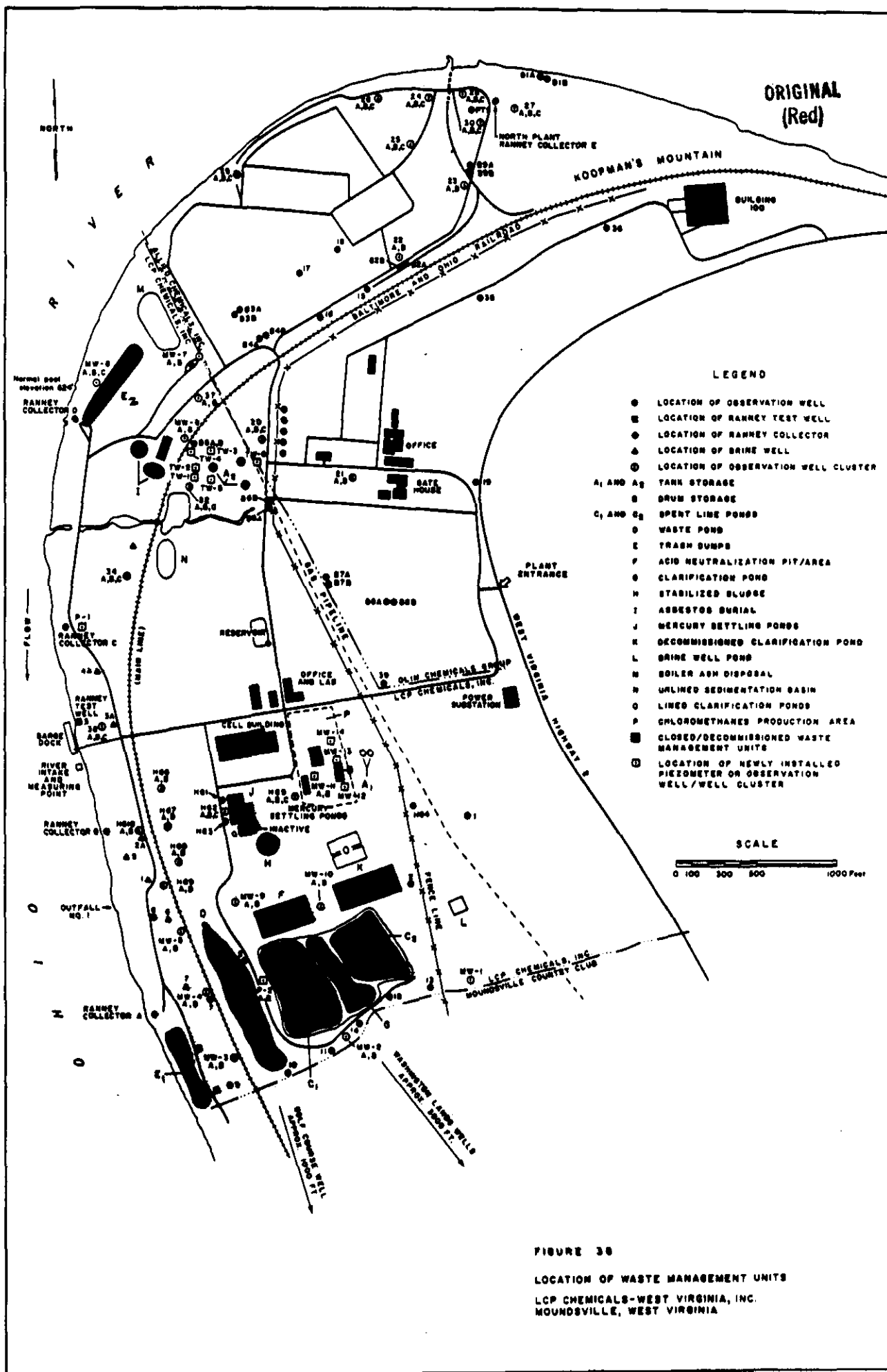
methylene chloride	5.0
chloroform	4.0
carbon tetrachloride	1.0
potassium carbonate	50.0
activated carbon	40.0

- E. BOD Distillate - This liquid material was the distillate from the distillation column in the wastewater treatment facility. Approximately 16,000 gallons/year were generated. An analyses is not available.
- F. CMP Spent Lime - This solid material was generated from the neutralization of residual acidity in the methyl chloride operation. The spent lime contained methanol and small amounts of chlorinated hydrocarbons. A detailed analyses and the amount generated/year is not available.
- G. CMP Spent Caustic - This liquid material was generated from the neutralization of residual chlorine and acidity in the chloromethanes product. The spent caustic contained sodium hypochlorite and trace amounts of chlorinated hydrocarbons. A detailed analyses and the amount generated/year is not available.
- H. Wastewater Treatment Sludge - This solid material was generated in the treatment of mercury contaminated waste streams from the chlorine/caustic soda operation. An estimated 230 tons/year were generated. Chemical composition follows:
- |                                |         |
|--------------------------------|---------|
| moisture                       | 50.0    |
| metallic carbonates/hydroxides | < 1.0   |
| metallic sulfides              | < 1.0   |
| metallic sulfates              | 1.0     |
| filter aid                     | balance |
- I. Brine Purification Muds - This solid material was generated during the removal of impurities in the raw brine from the solution mining of salt. The material consisted mostly of calcium and magnesium carbonates and hydroxides. Approximately 2,400 tons/year were generated. A detailed analyses is not available.
- J. Chlorinated Spent Lime - This solid material was generated during the scrubbing of waste chlorine gas with a calcium hydroxide solution. The waste contained approximately 10% calcium hypochlorite. About 2,500 tons/year were generated.
- K. Asbestos - Asbestos containing materials from various renovations were buried on-site. The material was packed in polyethylene bags. The amount is unknown.

- L. Hydrochloric Acid - The liquid by-product hydrochloric acid from the chloromethanes operation was disposed of on-site occasionally when there were no sales for the material. The 31% acid contained trace amounts of chlorinated hydrocarbons. There are no records for the amount disposed of on-site.
- M. Chlor/Alkali Spent Sulfuric Acid - This liquid material was generated in the chlor/alkali plant from the drying of product chlorine gas. Approximately 3,000 gallons/week were generated. The strength of the spent acid was 70% and it contained trace amounts of free chlorine. This material was shipped off-site (sold).
- N. Fly Ash and Cinders - Bottom ash from four coal-fired boilers was normally disposed of off-site. On occasion, bottom ash was used on-site for roads and trash dump cover. Fly ash was disposed of on-site and was also used to cover trash dumps. Approximately 26 tons/day of these materials were generated. In December, 1979 the bottom ash and fly ash were analyzed by the then proposed U. S. EPA RCRA extraction procedure. Additionally, the leachates were analyzed for all 129 priority pollutants. The analytical results of the RCRA extraction method indicated that the bottom ash and fly ash would not be considered hazardous from a toxicity point of view per the proposed RCRA regulations. In addition, all organic priority pollutants were below the detection limits. See attached table XI for analyses.
- O. Trash and Refuse - In addition to general plant trash, other materials including spent graphite from the mercury cells, ceramic packing from various vessels such as chlorine lime scrubbers and chloromethane reactors, insulation possibly containing asbestos, small quantities of laboratory chemicals and samples and CMP spent dryer residue were buried on-site.
- P. Vinyl Chloride Plant Chemicals - A list of chemicals used in the vinyl chloride operation follows:

Calcium Chloride  
Sulfuric Acid  
Potassium Hydroxide  
Sodium Hydroxide  
Phenol  
Acetaldehyde  
Sodium Bisulfite  
~~Aroclor~~ Aroclor  
Mercuric chloride impregnated carbon catalyst  
Heat transfer fluid

Other than the catalyst and heat transfer fluid, no record of the disposition of these materials could be found. The catalyst and heat transfer fluid were shipped off-site. The vinyl chloride plant was dismantled in 1967.



ORIGINAL  
(Red)

TABLE XI

ALLIED CHEMICAL CORPORATION - MOUNDSVILLE, W. VA. - SOUTH PLANT  
RCRA EXTRACTION - LEACHATE ANALYSIS AND SOLIDS ANALYSIS

Parameter	Fly Ash As Received (Ashed) mg/g	Fly Ash RCRA Distilled Water Leachate mg/l	Bottom Ash As Received (Ashed) mg/g	Bottom Ash RCRA Distilled Water Leachate mg/l	Bottom Ash RCRA AcOH Leachate mg/l
Ba	0.022	0.39	0.007	0.053	0.140
Be	0.004	0.020	<0.001	<0.001	0.002
Cd	0.001	0.039	<0.001	0.005	0.007
Cr	0.055	0.030	0.012	0.025	0.030
Cu	0.045	0.480	0.006	0.020	0.040
Ni	0.124	1.23	0.006	0.080	0.605
Pb	0.034	0.270	0.004	0.050	0.075
Zn	0.107	4.14	0.005	0.018	0.148
Ag	<0.001	<0.001	<0.001	<0.001	<0.001
As	0.153	0.098	0.002	0.015	0.009
Se	0.002	0.057	<0.001	0.018	0.016
Hg	<0.0002	0.0022	<0.0001	0.0001	0.0002
Tl	<0.001	0.009	<0.001	<0.001	<0.001
Sb	0.001	0.018	<0.001	<0.001	<0.001
Pd	0.002	0.010	<0.001	0.001	0.003
Endrin	NA	<1 ppb	NA	<1 ppb	<1 ppb
Lindane	NA	<10 ppb	NA	<10 ppb	<10 ppb
Methoxychlor	NA	<10 ppb	NA	<10 ppb	<10 ppb
Toxaphene	NA	<10 ppb	NA	<10 ppb	<10 ppb
2, 4 D	NA	<10 ppb	NA	<10 ppb	<10 ppb
2, 4, 5-TP	NA	<10 ppb	NA	<10 ppb	<10 ppb

NA - Not Applicable

QUESTION 7 - DISPOSAL/TREATMENT METHODS

The methods used to dispose of or treat each such substance, by-product and waste described in A through O of Question 7 above follows:

- A. Chlorinated Still Bottoms - From 1954-1973 this material was dumped to an open ditch which discharged to an unlined basin known as the acid neutralization area (F on attached Figure 36). The still bottoms were disposed of off-site after 1973.
- B. CMP Sludge - This material was disposed of on-site in settling basins (C<sub>1</sub> and C<sub>2</sub> on Figure 36) until 1976. The sludge was disposed of off-site after 1976.
- C. CMP Spent Sulfuric Acid - Until 1976 this material was disposed of in the acid neutralization area (F on Figure 36). The spent acid was disposed of off-site after 1976.
- D. Spent Dryer Residue - Until 1980 this material was disposed of on-site in trash dumps (E<sub>1</sub> and E<sub>2</sub> on Figure 36). Disposal was off-site after 1980.
- E. BOD Distillate - This material was never disposed of on-site.
- F. CMP Spent Lime - Until 1978 this material was disposed of on-site in settling basins (C<sub>1</sub> and C<sub>2</sub> on Figure 36). The use of lime in the methyl chloride operation was discontinued in 1978.
- G. CMP Spent Caustic - Until 1978 this material was disposed of on-site in settling basins C<sub>1</sub> and C<sub>2</sub> and the acid neutralization area, F. After 1978 the CMP spent caustic was treated on-site (distillation/neutralization).
- H. Wastewater Treatment Sludge - This material was disposed of on-site (G, H and J on Figure 36).
- I. Brine Purification Muds - This non-hazardous material was disposed of on-site in settling basins (C<sub>1</sub>, C<sub>2</sub>, D and K on Figure 36).
- J. Chlorinated Spent Lime - This material was disposed of on-site in settling basins (C<sub>1</sub>, C<sub>2</sub>, D and K on Figure 36).
- K. Asbestos - This material was buried on-site (E<sub>1</sub>, E<sub>2</sub> and I on Figure 36).

- L. Hydrochloric Acid - When there were no sales, Pond 1 (D on Figure 36) was utilized for the disposal of this acid for a period of approximately 5 years.
- M. Chlor/Alkali Spent Sulfuric Acid - This material was sold.
- N. Fly Ash and Cinders - On-site disposal was at M and N on Figure 36.
- O. Trash and Refuse - E<sub>1</sub> and E<sub>2</sub> on Figure 36. The on-site disposal of this material was discontinued in early 1980.

For those disposal locations which were closed, a description of methods, procedures, plans, etc. that were followed follows:

#### ACID NEUTRALIZATION AREA (F ON FIGURE 36)

In 1977 the acid neutralization pit was filled with clean soil. In 1981 the acid neutralization area was used as a work facility for stabilizing mercury-containing sludges dredged from unit G. The material dredged from unit G was mixed with "Chem-Fix", a chemical stabilizer consisting of cement, silicate, and sodium sulfide to form a stabilized sludge. The stabilized sludge was removed from the acid neutralization pit and placed back into the storage pond G as fill material during closure procedures. Final closure of the acid neutralization area occurred in 1982, when a 12 inch thick natural clay cap and covering of seeded topsoil was placed over the area.

#### SETTLING BASINS (C<sub>1</sub>, C<sub>2</sub> AND G ON FIGURE 36)

Solid waste management units C<sub>1</sub>, C<sub>2</sub> and G were closed in 1982. Prior to closure, the surface water in units C<sub>1</sub> and C<sub>2</sub> was drained and treated. Mercury containing sludges in Unit G were excavated and chemically fixed, then placed back into unit G as fill. Units C<sub>1</sub>, C<sub>2</sub>, and G were closed as one unit under a common cap. Final closure included adding fill and regrading, capping the units with 12 inches of clay, adding a topsoil layer, grading for drainage, and seeding. The boundaries of individual units cannot be distinguished from the ground surface.

#### TRASH DUMPS (E<sub>1</sub> AND E<sub>2</sub> ON FIGURE 36)

The trash dumps were closed in 1982. Closure consisted of filling to grade with soil fill and boiler ash, placing and compacting 12 inches of clay over the fill, covering the areas with topsoil, grading for drainage, and seeding with grass. These areas are currently maintained as a grassed field with restricted access.

STABILIZED SLUDGE AREA (H ON FIGURE 36)

ORIGINAL  
(Red)

In 1977 mercury-containing sludge was excavated from a former mercury settling pond and stabilized with Portland cement prior to placement into a lined (30 to 40 mil PVC), 110 foot by 210 foot excavation. The excavation was subsequently covered with a PVC liner, and capped with clean soil. The contribution of this unit to existing groundwater contamination is believed to be insignificant.

MERCURY SETTLING BASINS (J ON FIGURE 36)

Five EPDM-lined (1/16 inch-thick liner) ponds were used in the WV/NPDES treatment system for mercury-containing wastewaters generated in the chlor/alkali production area. Wastewaters were treated by pH adjustment and sulfide addition, which resulted in the transformation of mercury in the wastewater stream from mercuric chloride to a precipitated mercury sulfide. These ponds were in service from 1977 until 1986, when the units were found to be leaking and were subsequently closed by Hanlin. Closure activities included the in-place stabilization of residual sludge in the ponds with Portland cement and fly ash, and the installation of a modified "RCRA" cap consisting of a one-foot layer of compacted clay, a 40 mil synthetic liner, a one-foot sand drainage layer and a one-foot layer of topsoil.

SETTLING BASIN (D ON FIGURE 36)

In 1982 pond D was closed by draining and covering the surface with a 12 inch layer of compacted clay and 6 inches of topsoil.

QUESTION 9 - ASSESSMENTS/INVESTIGATIONS

The following investigations have been performed at the site by Geraghty & Miller, Inc. for Allied.

1. In 1977, an investigation was conducted to evaluate the nature and extent of contamination beneath the South plant (Hanlin area) of the plant. Findings from this study indicated that groundwater quality had been affected by plant-related contamination.
2. In 1978, a similar type investigation was conducted at the North plant (Allied/Olin area).
3. In 1986 the groundwater flow patterns at the Allied/Hanlin/Olin Site were reevaluated. The study concluded that the pumping program at the Site was successfully preventing groundwater contaminants from migrating off-site.

Copies of these three investigations have already been provided to U. S. EPA Region III.

4. In 1990 an evaluation was conducted of the existing groundwater monitoring well network and the containment system. A copy of the Executive Summary from the evaluation is attached.

1

**EVALUATION OF THE GROUND-WATER MONITORING AND CONTAINMENT  
SYSTEM AT THE ALLIED-SIGNAL, INC.  
HANLIN CHEMICALS-WEST VIRGINIA, INC., AND OLIN CORPORATION, INC. SITES  
MOUNDSVILLE, WEST VIRGINIA**

**ORIGINAL  
(Red)**

**EXECUTIVE SUMMARY**

During October and November of 1990, Geraghty & Miller performed an evaluation of the ground-water monitoring and containment system at Allied-Signal's former Moundsville facility. The principal findings of this investigation are outlined below and discussed in the following report.

- Measuring-point elevations on existing two-inch diameter wells at Allied Park were re-surveyed by Stegman and Schellhase, Inc. during the evaluation. Well-head elevations measured on January 1982 and October 1990 are generally comparable. Differences in well-head elevations between the October 1990 and May 1978 surveys is attributed to the addition to or removal of well casing to adjust final well height.
- The ground-water elevation data collected on October 1, 1990 indicate that, at current pumping rates, Ranney Wells A, D, and E are preventing the off-site migration of ground water from beneath the Allied-Signal, Hanlin Chemicals, and Olin Corporation sites. These findings concur with past evaluations documented for the ground-water system and a recently-created ground-water flow model prepared by Geraghty & Miller.
- Allied's existing ground-water monitoring network appears to be capable of providing representative water-quality data for the former, remediated formaldehyde pond and blackwater pond, and the former chemical trash dump, despite minor shifts in ground-water flow and damage to monitoring wells 29A and 26B.

- Water-quality data collected from monitoring wells 29A and 29B were found to be generally comparable. Consequently, well 29B could be proposed as a replacement for damaged well 29A.
- Of the existing wells originally designated for monitoring the former formaldehyde pond and former blackwater pond, wells 25A, B, and C remain optimally situated for the monitoring of ground-water quality alterations. These wells also monitor the encapsulated residuals area located within the former blackwater pond.
- Well clusters 23 and 30 are not situated to provide source-specific water-quality data for the former, remediated solid Waste Management Units. Allied may want to consider dropping these wells from the monitoring network.

(Reo)

1 1 1 1 (1-5)  
(DO NOT USE)

## FORM A: GENERAL FACILITY INFORMATION

Company Name: Allied Chemical CorporationFacility Name: Moundsville PlantAddress: Route 2, P. O. Box E  
No. StreetMoundsville, W. Va. 26041  
City State Zip CodeName of Person Completing Form: W. S. TaylorPosition: Manager - Process Improvement & Environmental ControlPhone Number: (201) 455-4294

54

1. Year Facility Opened ..... 19 81 (10-11)
2. Primary SIC Code ..... 2819 (12-15)
3. Estimate the total amounts of process wastes (excluding wastes sold for use) generated by this facility during 1978:

thousand gallons ..... 98 (16-24)

hundred tons ..... 98 (25-32)

thousand cubic yards ..... 98 (33-41)

4. Estimate (in whole percents) how these process wastes generated in 1978 were disposed of:

in landfill ..... 56 (42-44)

in pit/pond/lagoon ..... 21 (45-47)

in deep well ..... 10 (48-50)

incinerated ..... 9 (51-53)

reprocessed/recycled ..... 4 (54-56)

evaporated ..... 10 (57-59)

unknown ..... 10 (60-62)

other (Specify \_\_\_\_\_) ..... 10 (63-65)

5. What is the total number of known sites (including disposal on the property where this facility is located as one site) that have been used for the disposal of process wastes from this facility since 1950? ..... 8 (46-49)

## COMPLETE ONE FORM "B" FOR EACH OF THE SITES

6. Have any of the process wastes generated at this facility been hauled (removed) from this facility for disposal? (Yes=1; no=2) ..... 1 (64)

## IF YES, COMPLETE FORM "C"

7. Do you know the disposal site locations of all of the process waste hauled from your facility since 1950? (Yes=1; no=2) ..... 1 (71)

## IF NO, COMPLETE ONE FORM "D" FOR EACH FIRM OR CONTRACTOR WHO TOOK WASTE TO AN UNKNOWN LOCATION

8. Specify the earliest year represented by information from company or facility records supplied on this and other forms ..... 1981 (72-73)
9. Specify the earliest year represented by information from employee knowledge supplied on this and other forms ..... 1981 (73-76)

North & South  
Plants

## FORM 1: DISPOSAL SITE INFORMATION

(1-2)  
(DO NOT USE)ORIGINAL  
(Red)

COMPLETE THIS FORM FOR EVERY SITE (INCLUDING THE LOCATION OF THIS FACILITY AS ONE SITE) USED FOR THE DISPOSAL OF PROCESS WASTES GENERATED BY THIS FACILITY SINCE 1950.

Company Name: Allied Chemical Corporation  
 Facility Name: Moundsville Plant  
 Name of Site: Moundsville Plant  
 Address of Site: Route 2, P. O. Box E  
                   no.                  street  
                   Moundsville, W. Va.                  26041  
                   city                  state                  zip code

Name of Owner (while used by facility): Allied Chemical Corporation, Moundsville Plant  
 Address: Route 2, P. O. Box E  
                   no.                  street  
                   Moundsville                  W. Va.                  26041  
                   city                  state                  zip code

Current Owner (if different from above):  
 Address: \_\_\_\_\_  
                   no.                  street  
                   city                  state                  zip code

1. Location (1= the property on which facility is located; 2= off-site)..... 1 (10)
2. Ownership at time of use (1= company ownership; 2=private but not company ownership) 3=public ownership) ..... 1 (11)
3. Current status (1= closed; 2= still in use; 9=don't know) ..... 2 (12)  
     IF CLOSED, specify year closed ..... 1971 (13-14)
4. Year first used for process waste from this facility ..... 54 (15-16)
5. Year last used for process waste from this facility (enter "79" if still in use) ..... 1971 (17-18)
6. Total amount of process waste from this facility disposed at site:  
     thousand gallons ..... 17378 (19-25)  
     hundred tons ..... 17378 (27-33)  
     thousand cubic yards ..... 17378 (34-41)
7. Specify type(s) of disposal method(s) used at site and whether method is still in use (1=currently in use; 2=no longer in use; 3=never used; 9=don't know)  
     landfill, none industrial waste ..... 1 (42)  
     landfill, mixed industrial waste ..... 1 (43)  
     landfill, drummed waste ..... 2 (44)  
     landfill, municipal refuse co-disposed ..... 3 (45)  
     pits/ponds/lagoons ..... 1 (46)  
     deep well injection ..... 3 (47)  
     land farming ..... 1 (48)  
     incineration ..... 1 (49)  
     treatment (eg. neutralizing) ..... 1 (50)  
     reprocessing/recycling ..... 1 (51)  
     other (specify) Storage for Reprocessing ..... 1 (52)
8. Users of this site (1=this facility; 2=this facility and other company facilities only; 3=this company and others; 9=don't know) ..... 1 (53)

LIST NAMES AND ADDRESSES OF OTHER KNOWN USERS BELOW

FORM 3 - Page 1

Company Name: Allied Chemical CorporationFacility Name: Moundsville PlantSite Name: Moundsville Plant

1	2	3	4	5	6	7	8	9	10
(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)

ORIGINAL  
(Red)

9. Components (or characteristics) of process waste from this facility disposed at site: (1-present in waste; 2-not present in waste; 9-don't know)

## FILL IN EVERY BLOCK SPACE

Acid solutions, with pH < 3	1	(10)
pickling liquor	2	(11)
metal plating waste	2	(12)
circuit etchings	2	(13)
inorganic acid manufacture	1	(14)
organic acid manufacture	1	(15)
Base solutions, with pH > 10	2	(16)
caustic soda manufacture	2	(17)
nylon and similar polymer generation	2	(18)
scrubber residual	2	(19)
Heavy metals & trace metals (bonded organically & inorganically)	1	(20)
arsenic, selenium, antimony	1	(21)
mercury	1	(22)
iron, manganese, magnesium	1	(23)
zinc, cadmium, copper, chromium (trivalent)	1	(24)
chromium (hexavalent)	1	(25)
lead	1	(26)
Radioactive residues, > 3 pico curies/liter	1	(27)
uranium residuals & residuals for U <sub>2</sub> recycling	1	(28)
lanthanide series elements and rare earth salts	1	(29)
phosphate slag	1	(30)
thorium	1	(31)
radium	1	(32)
other alpha, beta & gamma emitters	1	(33)
Organics	1	(34)
pesticides & intermediates	1	(35)
herbicides & intermediates	1	(36)
fungicides & intermediates	1	(37)
rodenticides & intermediates	1	(38)
halogenated aliphatics	1	(39)
halogenated aromatics	1	(40)
acrylates & latex emulsions	1	(41)
PCB/PBB's	1	(42)
amides, amines, imides	1	(43)
plasticizers	1	(44)
resins	1	(45)
elastomers	1	(46)
solvents polar (except water)	1	(47)
carbon tetrachloride	1	(48)
trichloroethylene	1	(49)
other solvents nonpolar	1	(50)
solvents halogenated aliphatic	1	(51)
solvents halogenated aromatic	1	(52)
oils and oil sludges	1	(53)
esters and ethers	1	(54)
alcohols	1	(55)
ketones & aldehydes	1	(56)
dioxins	1	(57)
Inorganics	1	(58)
salts	1	(59)
mercaptans	1	(60)
Misc	1	(61)
pharmaceutical wastes	1	(62)
paints & pigments	1	(63)
catalysts (eg. vanadium, platinum, palladium)	1	(64)
asbestos	1	(65)
shock sensitive wastes (eg. nitrated toluenes)	1	(66)
air water reactive wastes (eg. P <sub>4</sub> , aluminum chloride)	1	(67)
wastes with flash point below 100° F.	1	(68)

## FORM 3: DISPOSAL SITE INFORMATION

(1-5)  
(DO NOT USE)ORIGINAL  
(Red)

COMPLETE THIS FORM FOR EACH SITE (INCLUDING THE LOCATION OF THIS FACILITY AS ONE SITE) USED FOR THE DISPOSAL OF HAZARDOUS WASTES GENERATED BY THIS FACILITY SINCE 1950.

Company Name: Allied Chemical Corporation  
 Facility Name: Moundsville Plant  
 Name of Site: Ohio Liquid Disposal, Inc.  
 Address of Site: 1956 State Route 412  
                   no.                  street  
                   Vickery,                  Ohio                  43464  
                   city                  state                  zip code

Name of Owner (while used by facility): Ohio Liquid Disposal, Inc.  
 Address: 1956 State Route 412  
                   no.                  street

Vickery,                  Ohio                  43464  
 city                  state                  zip code

Current Owner (if different from above):  
 Address: \_\_\_\_\_  
                   no.                  street  
                   city                  state                  zip code

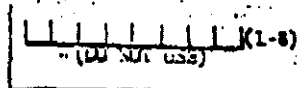
1. Location (1= the property on which facility is located; 2= off-site)..... (2) (10)
2. Ownership at time of use (1= company ownership; 2=private but not company ownership) 3=public ownership) ..... (2) (11)
3. Current status (1= closed; 2= still in use; 3=don't know) ..... (2) (12)  
     IF CLOSED, specify year closed ..... 78 19 (13-14)
4. Year first used for process waste from this facility ..... 19 (15-16)
5. Year last used for process waste from this facility (enter "79" if still in use) ..... 19 79 (17-18)
6. Total amount of process waste from this facility disposed at site:  
     thousand gallons ..... (19-25)  
     hundred tons ..... 11 (27-33)  
     thousand cubic yards ..... (34-41)
7. Specify type(s) of disposal method(s) used at site and whether method is still in use (1=currently in use; 2=no longer in use; 3=never used; 4=don't know)  
     landfill, mono industrial waste ..... (3) (42)  
     landfill, mixed industrial waste ..... (3) (43)  
     landfill, drummed waste ..... (3) (44)  
     landfill, municipal refuse co-disposed ... (3) (45)  
     pits/ponds/lagoons ..... (3) (46)  
     deep well injection ..... (3) (47)  
     land farming ..... (3) (48)  
     incineration ..... (3) (49)  
     treatment (eg. neutralizing)..... (3) (50)  
     reprocessing/recycling ..... (3) (51)  
     other (specify) ..... (3) (52)
8. Users of this site (1=this facility; 2=this facility and other company facilities only; 3=this company and others; 4=don't know) ..... (4) (53)

LIST NAMES AND ADDRESSES OF OTHER KNOWN USERS BELOW

FORM 3 CONTINUED ON SECOND PAGE

(1) (30)

FORM 3 - Page 2

Company Name: Allied Chemical CorporationFacility Name: Moundsville PlantSite Name: Ohio Liquid Disposal, Inc.ORIGINAL  
(Red)

9. Components (or characteristics) of process waste from this facility disposed at site: (1-present in waste; 2-not present in waste; 9-don't know)

## FILL IN EVERY BLOCK SPACE

Acid solutions, with pH < 3	1	(10)
pickling liquor	2	(11)
metal plating waste	2	(12)
circuit etchings	2	(13)
inorganic acid manufacture	2	(14)
organic acid manufacture	2	(15)
Base solutions, with pH > 10	2	(16)
caustic soda manufacture	2	(17)
nylon and similar polymer generation	2	(18)
scrubber residual	2	(19)
Heavy metals & trace metals (bonded organically & inorganically)	2	(20)
arsenic, selenium, antimony	2	(21)
mercury	2	(22)
iron, manganese, magnesium	2	(23)
zinc, cadmium, copper, chromium (trivalent)	2	(24)
chromium (hexavalent)	2	(25)
lead	2	(26)
Radioactive residues, > 3 pico curies/liter	2	(27)
uranium residuals & residuals for UF <sub>6</sub> recycling	2	(28)
lanthanide series elements and rare earth salts	2	(29)
phosphate slag	2	(30)
thorium	2	(31)
radium	2	(32)
other alpha, beta & gamma emitters	2	(33)
Organics	2	(34)
pesticides & intermediates	2	(35)
herbicides & intermediates	2	(36)
fungicides & intermediates	2	(37)
rodenticides & intermediates	2	(38)
halogenated aliphatics	2	(39)
halogenated aromatics	2	(40)
acrylates & latex emulsions	2	(41)
PCB/PBB's	2	(42)
amides, amines, imides	2	(43)
plastizers	2	(44)
resins	2	(45)
elastomers	2	(46)
solvents polar (except water)	2	(47)
carbon tetrachloride	2	(48)
trichloroethylene	2	(49)
other solvents nonpolar	2	(50)
solvents halogenated aliphatic	2	(51)
solvents halogenated aromatic	2	(52)
oils and oil sludges	2	(53)
esters and ethers	2	(54)
alcohols	2	(55)
ketones & aldehydes	2	(56)
dioxins	2	(57)
Inorganics	2	(58)
salts	2	(59)
mercaptans	2	(60)
Misc.	2	(61)
pharmaceutical wastes	2	(62)
paints & pigments	2	(63)
catalysts (eg. vanadium, platinum, palladium)	2	(64)
asbestos	2	(65)
shock sensitive wastes (eg. nitrated toluenes)	2	(66)
air water reactive wastes (eg. P <sub>4</sub> , aluminum chloride)	2	(67)
wastes with flash point below 100° F.	2	(68)

## FORM 3: DISPOSAL SITE INFORMATION

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

 (DO NOT USE) (1-8)
ORIGINAL  
(Red)

COMPLETE THIS FORM FOR EVERY SITE (INCLUDING THE LOCATION OF THIS FACILITY AS ONE SITE) USED FOR THE DISPOSAL OF BUSINESS WASTES GENERATED BY THIS FACILITY SINCE 1950.

Company Name: Allied Chemical Corporation  
 Facility Name: Moundsville Plant  
 Name of Site: Chem-Trol Pollution Service, Inc.  
 Address of Site: P. O. Box 200

no. street  
 Model City: N. Y. 14107  
 city state zip code

Name of Owner (while used by facility): Chem-Trol Pollution Service, Inc.  
 Address: P. O. Box 200

no. street  
 Model City: N. Y. 14107  
 city state zip code

Current Owner (if different from above):  
 Address:

no. street  
 city state zip code

- Location (1- the property on which facility is located; 2- off-site)..... 2 (10)
- Ownership at time of use (1- company ownership; 2-private but not company ownership) 3-public ownership) ..... 2 (11)
- Current status (1- closed; 2- still in use; 9-don't know) ..... 2 (12)  
 IF CLOSED, specify year closed ..... 1971 (13-14)
- Year first used for process waste from this facility ..... 1971 (15-16)
- Year last used for process waste from this facility (enter "79" if still in use) ..... 76 15 (17-18)
- Total amount of process waste from this facility disposed at site:  
 thousand gallons ..... 7 (19-26)  
 hundred tons ..... 1 (27-33)  
 thousand cubic yards ..... 1 (34-41)
- Specify type(s) of disposal method(s) used at site and whether method is still in use (1-currently in use; 2-no longer in use; 3-never used; 9-don't know)  
 landfill, mono industrial waste ..... 3 (42)  
 landfill, mixed industrial waste ..... 2 (43)  
 landfill, drummed waste ..... 1 (44)  
 landfill, municipal refuse co-disposed ... 3 (45)  
 pits/ponds/lagoons ..... 2 (46)  
 deep well injection ..... 3 (47)  
 land farming ..... 3 (48)  
 incineration ..... 2 (49)  
 treatment (eg. neutralizing)..... 3 (50)  
 reprocessing/recycling ..... 1 (51)  
 other (specify) ..... 9 (52)
- Users of this site (1-this facility; 2-this facility and other company facilities only; 3-this company and others; 9-don't know) ..... 2 (53)

LIST NAMES AND ADDRESSES OF OTHER KNOWN USERS BELOW

FORM 1 - Page 2

Company Name: Allied Chemical Corporation  
 Facility Name: Moundsville Plant  
 Site Name: Chem-Trol Pollution Service, Inc.

(1-2)  
 (USE)

ORIGINAL  
 (Red)

9. Components (or characteristics) of process waste from this facility disposed at site: (1=present in waste; 2=not present in waste; 9=don't know)

FILL IN EVERY BLOCK SPACE

Acid solutions, with pH < 3	2	(10)
pickling liquor	2	(11)
metal plating waste	2	(12)
circuit etchings	2	(13)
inorganic acid manufacture	2	(14)
organic acid manufacture	2	(15)
Base solutions, with pH > 10	9	(16)
caustic soda manufacture	2	(17)
nylon and similar polymer generation	2	(18)
scrubber residual	2	(19)
Heavy metals & trace metals (bonded organically & inorganically)	9	(20)
arsenic, selenium, antimony	2	(21)
mercury	9	(22)
iron, manganese, magnesium	9	(23)
zinc, cadmium, copper, chromium (trivalent)	9	(24)
chromium (hexavalent)	9	(25)
lead	9	(26)
Radioactive residues, > 3 pico curies/liter	2	(27)
uranium residuals & residuals for U <sub>2</sub> F <sub>6</sub> recycling	2	(28)
lanthanide series elements and rare earth salts	2	(29)
phosphate slag	2	(30)
thorium	2	(31)
radium	2	(32)
other alpha, beta & gamma emitters	2	(33)
Organics	2	(34)
pesticides & intermediates	2	(35)
herbicides & intermediates	2	(36)
fungicides & intermediates	2	(37)
rodenticides & intermediates	2	(38)
halogenated aliphatics	2	(39)
halogenated aromatics	2	(40)
acrylates & latex emulsions	2	(41)
PCB/PPB's	2	(42)
amides, amines, imides	2	(43)
plasticizers	2	(44)
resins	2	(45)
elastomers	2	(46)
solvents polar (except water)	9	(47)
carbon tetrachloride	9	(48)
trichloroethylene	9	(49)
other solvents nonpolar	9	(50)
solvents halogenated aliphatic	2	(51)
solvents halogenated aromatic	2	(52)
oils and oil sludges	9	(53)
esters and ethers	9	(54)
alcohols	2	(55)
ketones & aldehydes	2	(56)
dioxins	2	(57)
Inorganics	2	(58)
salts	2	(59)
mercaptans	2	(60)
Misc.	2	(61)
pharmaceutical wastes	2	(62)
paints & pigments	2	(63)
catalysts (eg. vanadium, platinum, palladium)	2	(64)
substrates	2	(65)
shock sensitive wastes (eg. nitrated toluenes)	2	(66)
air/water reactive wastes (eg. P <sub>2</sub> , aluminum chloride)	2	(67)
wastes with flash point below 100° F.	2	(68)

**FORM 3: DISTAL SITE INFORMATION**

11-111111 (1-3)  
(OO NOT USE)

**ORIGINAL**  
**(Red)**

COMPLETE THIS FORM FOR EVERY SITE (INCLUDING THE LOCATION OF THIS FACILITY AS OUR SITE) USED FOR THE DISPOSAL OF HAZARDOUS WASTES GENERATED BY THIS FACILITY SINCE 1980.

Company Name: Allied Chemical Corporation  
Facility Name: Moundsville Plant  
Name of Site: Newco Chemical Waste Systems, Inc.  
Address of Site: 1526 Royal Avenue  
no. street  
Niagara Falls N. Y. 14303  
city state zip code

Name of Owner (while used by facility): Newco Chemical Waste Systems, Inc.  
Address: 4626 Royal Avenue  
                    no.                    street  
Niagara Falls                    N. Y.                    14303  
                    city                    state                    zip code

Current Owner (if different from above): \_\_\_\_\_  
Address: \_\_\_\_\_  
no. street  
city state zip code

- |   |    |         |
|---|----|---------|
| 1. Location (1= the property on which facility is located; 2= off-site)...  | 2  | (10)    |
| 2. Ownership at time of use (1= company ownership; 2=private but not company ownership) 3=public ownership) .....   | 2  | (11)    |
| 3. Current status (1= closed; 2= still in use; 3=don't know) .....  | 2  | (12)    |
| IF CLOSED, specify year closed .....  |    |         |
| 4. Year first used for process waste from this facility .....   | 78 | (13-14) |
| 5. Year last used for process waste from this facility (enter "79" if still in use) .....   | 78 | (15-16) |
| 6. Total amount of process waste from this facility disposed at site:   |    |         |
| thousand gallons .....  |    | (19-25) |
| hundred tons .....  | 6  | (27-33) |
| thousand cubic yards .....  |    | (34-41) |
| 7. Specify type(s) of disposal method(s) used at site and whether method is still in use (1=currently in use; 2=no longer in use; 3=never used; 9=don't know) |    |         |
| landfill, mono industrial waste .....   | 3  | (42)    |
| landfill, mixed industrial waste .....  | 0  | (43)    |
| landfill, drummed waste .....   | 1  | (44)    |
| landfill, municipal refuse co-disposed ...  | 0  | (45)    |
| pits/ponds/lagoons .....  | 1  | (46)    |
| deep well injection .....   | 1  | (47)    |
| land farming .....  | 1  | (48)    |
| incineration .....  | 3  | (49)    |
| treatment (eg. neutralizing) .....  | 1  | (50)    |
| reprocessing/recycling .....  | 3  | (51)    |
| other (specify) .....   | 9  | (52)    |
| 8. Users of this site (1=this facility; 2=other facility and other company facilities only; 3=this company and others; 9=don't know) .....                    | 9  | (53)    |

LIST NAMES AND ADDRESSES OF OTHER KNOWN USERS BELOW

FORM 2 - Page 2

Company Name: Allied Chemical CorporationFacility Name: Moundsville PlantSite Name: Newco Chemical Waste Systems, Inc.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

ORIGINAL  
(Red)

9. Components (or characteristics) of process waste from this facility disposed at site: (1-present in waste; 2-not present in waste; 3-don't know)

## FILL IN EVERY BLOCK SPACE

Acid solutions, with pH < 3	(10)
pickling liquor	(11)
metal plating waste	(12)
circuit etchings	(13)
inorganic acid manufacture	(14)
organic acid manufacture	(15)
Base solutions, with pH > 10	(16)
caustic soda manufacture	(17)
nylon and similar polymer generation	(18)
scrubber residual	(19)
Heavy metals & trace metals (bonded organically & inorganically)	(20)
arsenic, selenium, antimony	(21)
mercury	(22)
iron, manganese, magnesium	(23)
zinc, cadmium, copper, chromium (trivalent)	(24)
chromium (hexavalent)	(25)
lead	(26)
Radioactive residues, > 5 pico curies/liter	(27)
uranium residuals & residuals for UFG recycling	(28)
lanthanide series elements and rare earth salts	(29)
phosphate slag	(30)
thorium	(31)
radium	(32)
other alpha, beta & gamma emitters	(33)
Organics	(34)
pesticides & intermediates	(35)
herbicides & intermediates	(36)
fungicides & intermediates	(37)
rodenticides & intermediates	(38)
halogenated aliphatics	(39)
halogenated aromatics	(40)
acrylates & latex emulsions	(41)
PCB/PBB's	(42)
amides, amines, imides	(43)
plasticizers	(44)
resins	(45)
elastomers	(46)
solvents polar (except water)	(47)
carbon tetrachloride	(48)
trichloroethylene	(49)
other solvents nonpolar	(50)
solvents halogenated aliphatic	(51)
solvents halogenated aromatic	(52)
oils and oil sludges	(53)
esters and ethers	(54)
alcohols	(55)
ketones & aldehydes	(56)
dioxins	(57)
Inorganics	(58)
salts	(59)
mercaptans	(60)
Misc	(61)
pharmaceutical wastes	(62)
paints & pigments	(63)
catalysts (eg. vanadium, platinum, palladium)	(64)
asbestos	(65)
shock sensitive wastes (eg. nitrated toluenes)	(66)
air water reactive wastes (eg. P <sub>2</sub> , aluminum chloride)	(67)
wastes with flash point below 100° F.	(68)

[Z] (30)

## FORM 5: DISPOSAL SITE INFORMATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

 (DO NOT USE)
ORIGINAL  
(Red)

COMPLETE THIS FORM FOR EVERY SITE (INCLUDING THE OPERATION OF THIS FACILITY AS ONE SITE) USED FOR THE DISPOSAL OF PROCESS WASTES GENERATED BY THIS FACILITY SINCE 1950.

Company Name: Allied Chemical Corporation  
 Facility Name: Moundsville Plant  
 Name of Site: Dover Chemical Company, Division ICC  
 Address of Site: Davis - West 15th Street  
                     no.                    street  
                     Dover,                    Ohio                    44622  
                     city                    state                    zip code

Name of Owner (wholly used by facility): Dover Chemical Company, Division ICC  
 Address: Davis - West 15th Street  
                     no.                    street

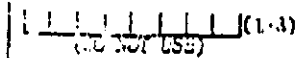
Dover,                    Ohio                    44622  
 city                    state                    zip code

Current Owner (if different from above):  
 Address: \_\_\_\_\_  
                     no.                    street  
                     city                    state                    zip code

1. Location (1= the property on which facility is located; 2= off-site)..... 2 (10)
2. Ownership at time of use (1= company ownership; 2=private but not company ownership) 3=public ownership) ..... 2 (11)
3. Current status (1= closed; 2= still in use; 3=don't know) ..... 2 (12)  
     IF CLOSED, specify year closed ..... 1977 (13-14)
4. Year first used for process waste from this facility ..... 1977 (15-16)
5. Year last used for process waste from this facility (enter "79" if still in use) ..... 1977 (17-18)
6. Total amount of process waste from this facility disposed at site:  
     thousand gallons ..... 1 1 1 1 1 1 1 1 1 1 (19-25)  
     hundred tons ..... 1 1 1 1 1 1 1 1 1 1 (26-33)  
     thousand cubic yards ..... 1 1 1 1 1 1 1 1 1 1 (34-41)
7. Specify type(s) of disposal method(s) used at site and whether method is still in use (1=currently in use; 2=no longer in use; 3=never used; 9=don't know)  
     landfill, mono industrial waste ..... 3 (42)  
     landfill, mixed industrial waste ..... 3 (43)  
     landfill, drummed waste ..... 3 (44)  
     landfill, municipal refuse co-disposed ... 3 (45)  
     pits/ponds/lagoons ..... 3 (46)  
     deep well injection ..... 3 (47)  
     land farming ..... 3 (48)  
     incineration ..... 3 (49)  
     treatment (eg. neutralizing) ..... 3 (50)  
     reprocessing/recycling ..... 3 (51)  
     other (specify) ..... 3 (52)
8. Users of this site (1=this facility; 2=this facility and other company facilities only; 3=this company and others; 9=don't know) ..... 2 (53)

LIST NAMES AND ADDRESSES OF OTHER KNOWN USERS BELOW

FORM 3 - Page 2

Company Name: Allied Chemical CorporationFacility Name: Moundsville PlantSite Name: Dover Chemical Company, Division ICC

ORIGINAL  
(Red)

9. Components (or characteristics) of process waste from this facility disposed at site: (1=present in waste; 2=not present in waste; 3=don't know)

## FILL IN EVERY BLOCK SPACE

Acid solutions, with pH < 1	2	(10)
pickling liquor	2	(11)
metal plating waste	2	(12)
circuit etchings	2	(13)
inorganic acid manufacture	2	(14)
organic acid manufacture	2	(15)
Base solutions, with pH > 10	2	(16)
caustic soda manufacture	2	(17)
nylon and similar polymer generation	2	(18)
scrubber residual	2	(19)
Heavy metals & trace metals (bonded organically & inorganically)	2	(20)
arsenic, selenium, antimony	2	(21)
mercury	2	(22)
iron, manganese, magnesium	2	(23)
zinc, cadmium, copper, chromium (trivalent)	2	(24)
chromium (hexavalent)	2	(25)
lead	2	(26)
Radioactive residues, > 3 picocuries/liter	2	(27)
uranium residuals & residuals for UFG recycling	2	(28)
lanthanide series elements and rare earth salts	2	(29)
phosphate slag	2	(30)
thorium	2	(31)
radium	2	(32)
other alpha, beta & gamma emitters	2	(33)
Organics	2	(34)
pesticides & intermediates	2	(35)
herbicides & intermediates	2	(36)
fungicides & intermediates	2	(37)
rodenticides & intermediates	2	(38)
halogenated aliphatics	2	(39)
halogenated aromatics	2	(40)
acrylates & latex emulsions	2	(41)
PCA/PBA's	2	(42)
amides, amines, imides	2	(43)
plasticizers	2	(44)
resins	2	(45)
elastomers	2	(46)
solvents polar (except water)	2	(47)
carbon tetrachloride	2	(48)
trichloroethylene	2	(49)
other solvents nonpolar	2	(50)
solvents halogenated aliphatic	2	(51)
solvents halogenated aromatic	2	(52)
oils and oil sludges	2	(53)
esters and ethers	2	(54)
alcohols	2	(55)
ketones & aldehydes	2	(56)
dioxins	2	(57)
Inorganics	2	(58)
salts	2	(59)
mercaptans	2	(60)
Misc	2	(61)
pharmaceutical wastes	2	(62)
paints & pigments	2	(63)
catalysts (eg. vanadium, platinum, palladium)	2	(64)
asbestos	2	(65)
shock sensitive wastes (eg. nitrated toluenes)	2	(66)
air water reactive wastes (eg. P <sub>2</sub> , aluminum chloride)	2	(67)
wastes with flash point below 100° F.	2	(68)

## FORM 3: DISPOSAL SITE INFORMATION

11-11-11-11-11 (1-8)

UNIT 1244  
(Red)

COMPLETE THIS FORM FOR EVERY SITE (INCLUDING THE LOCATION OF THIS FACILITY AND THE SITE) USED FOR THE DISPOSAL OF PROCESS WASTES GENERATED BY THIS FACILITY SINCE 1950.

Company Name: Allied Chemical Corporation  
 Facility Name: Moundsville Plant  
 Name of Site: Huckill Chemical Company  
 Address of Site: 7011 Krick Road  
                               no.                              street  
                               Badford,                              Ohio                              44146  
                               city                              state                              zip code

Name of Owner (while used by facility): Hukill Chemical Company  
Address: 7013 Brick Road

no.	street		
Bedford	Ohio	44146	
city	state	zip code	

Current Owner (if different from above): \_\_\_\_\_  
Address: \_\_\_\_\_  
no. street  
city state zip code

- |   |   |         |
|---|---|---------|
| 1. Location (1= the property on which facility is located; 2= off-site).....  | [ 2 ]                                   | (10)    |
| 2. Ownership at time of use (1= company ownership; 2=private but not company ownership) 3=public ownership) .....   | [ 2 ]                                   | (11)    |
| 3. Current status (1= closed; 2= still in use; 9=don't know) .....  | [ 2 ]                                   | (12)    |
| IF CLOSED, specify year closed .....  | 19 [ 8 ]                                | (13-14) |
| 4. Year first used for process waste from this facility .....   | 19 [ 8 ]                                | (15-16) |
| 5. Year last used for process waste from this facility (enter "79" if still in use) .....   | 19 [ 79 ]                               | (17-19) |
| 6. Total amount of process waste from this facility disposed at site:   |   |         |
| thousand gallons .....  | [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] | (19-25) |
| hundred tons .....  | [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] | (27-33) |
| thousand cubic yards .....  | [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] | (34-41) |
| 7. Specify type(s) of disposal method(s) used at site and whether method is still in use (1=currently in use; 2=no longer in use; 3=never used; 9=don't know) |   |         |
| landfill, mono industrial waste .....   | [ 3 ]                                   | (42)    |
| landfill, mixed industrial waste .....  | [ 3 ]                                   | (43)    |
| landfill, drummed waste .....   | [ 3 ]                                   | (44)    |
| landfill, municipal refuse co-disposed ...  | [ 3 ]                                   | (45)    |
| pits/ponds/lagoons .....  | [ 3 ]                                   | (46)    |
| deep well injection .....   | [ 3 ]                                   | (47)    |
| land farming .....  | [ 3 ]                                   | (48)    |
| incineration .....  | [ 3 ]                                   | (49)    |
| treatment (eg. neutralizing).....   | [ 3 ]                                   | (50)    |
| reprocessing/recycling .....  | [ 3 ]                                   | (51)    |
| other (specify) .....   | [ 3 ]                                   | (52)    |
| 8. Users of this site (1=this facility; 2=this facility and other company facilities only; 3=this company and others; 9=don't know) .....                     | [ 2 ]                                   | (53)    |

LIST NAMES AND ADDRESSES OF OTHER KNOWN USERS BELOW

SCRIPT CONTINUED ON SECOND PAGE

(03) 11

FORM 5 - Page 2

Company Name: Allied Chemical CorporationFacility Name: Moundaville PlantSite Name: Hukill Chemical Company

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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ORIGINAL  
(Red)

3. Comments (or characteristics) of process waste from this facility disposed at site: (1-present in waste; 2-not present in waste; 3-don't know)

FILL IN EVERY BLOCK SPACE

Acid solutions, with pH < 3	(10)
pickling liquor	(11)
metal plating waste	(12)
circuit etchants	(13)
inorganic acid manufacture	(14)
organic acid manufacture	(15)
Base solutions, with pH > 10	(16)
caustic soda manufacture	(17)
nylon and similar polymer generation	(18)
scrubber residuals	(19)
Heavy metals & trace metals (bonded organically & inorganically)	(20)
arsenic, selenium, antimony	(21)
mercury	(22)
iron, manganese, magnesium	(23)
zinc, cadmium, copper, chromium (trivalent)	(24)
chromium (hexavalent)	(25)
lead	(26)
Radioactive residues, > 5 pico curies/liter	(27)
uranium residuals & residuals for UF <sub>6</sub> recycling	(28)
lanthanide series elements and rare earth salts	(29)
phosphate slag	(30)
thorium	(31)
radium	(32)
other alpha, beta & gamma emitters	(33)
Organics	(34)
pesticides & intermediates	(35)
herbicides & intermediates	(36)
fungicides & intermediates	(37)
rodenticides & intermediates	(38)
halogenated aliphatics	(39)
halogenated aromatics	(40)
acrylates & latex emulsions	(41)
PCB/PBB's	(42)
amides, amines, imides	(43)
plastizers	(44)
resins	(45)
elastomers	(46)
solvents polar (except water)	(47)
carbon tetrachloride	(48)
trichloroethylene	(49)
other solvents nonpolar	(50)
solvents halogenated aliphatic	(51)
solvents halogenated aromatic	(52)
oils and oil sludges	(53)
esters and ethers	(54)
alcohols	(55)
ketones & aldehydes	(56)
dioxins	(57)
Inorganics	(58)
salts	(59)
mercaptans	(60)
Misc	(61)
pharmaceutical wastes	(62)
paints & pigments	(63)
catalysts (eg. vanadium, platinum, palladium)	(64)
asbestos	(65)
explosive sensitive wastes (eg. nitrated toluenes)	(66)
air water reactive wastes (eg. P <sub>2</sub> , aluminum chloride)	(67)
wastes with flash point below 100° F.	(68)

## FORM 3: DISPOSAL SITE INFORMATION

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

 (1-3)
ORIGINAL  
(Red)

COMPLETE THIS FORM FOR EVERY SITE (INCLUDING THE LOCATION OF THIS FACILITY AND THE SITE) USED FOR THE DISPOSAL OF PROCESS WASTES GENERATED BY THIS FACILITY SINCE 1950.

Company Name: Allied Chemical Corporation  
 Facility Name: Moundsville Plant  
 Name of Site: Browning-Ferris Industries  
 Address of Site: Box 188  
                     no.                    street  
                     East Palestine, Ohio 44413  
                     city                    state                    zip code

Name of Owner (if not used by facility): Browning-Ferris Industries  
 Address: Box 188  
                     no.                    street  
                     East Palestine, Ohio 44413  
                     city                    state                    zip code

Current Owner (if different from above):  
 Address:  
                     no.                    street  
                     city                    state                    zip code

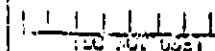
1. Location (1= the property on which facility is located; 2= off-site)..... 2 (10)
2. Ownership at time of use (1= company ownership; 2=private but not company ownership) 3=public ownership) ..... 2 (11)
3. Current status (1= closed; 2= still in use; 3=don't know) ..... 2 (12)  
     IF CLOSED, specify year closed ..... 1977 (13-14)
4. Year first used for process waste from this facility ..... 1977 (15-16)
5. Year last used for process waste from this facility (enter "79" if still in use) ..... 1977 (17-18)
6. Total amount of process waste from this facility disposed at site:  
     thousand gallons ..... 10 (19-25)  
     hundred tons .. 0.1 Tons ..... 10 (27-33)  
     thousand cubic yards ..... 10 (34-41)
7. Specify type(s) of disposal method(s) used at site and whether method is still in use (1=currently in use; 2=no longer in use; 3=never used; 9=don't know)  
     landfill, nonhazardous waste ..... 3 (42)  
     landfill, mixed industrial waste ..... 2 (43)  
     landfill, drummed waste ..... 1 (44)  
     landfill, municipal refuse co-disposed ... 3 (45)  
     pits/ponds/lagoons ..... 3 (46)  
     deep well injection ..... 3 (47)  
     land farming ..... 3 (48)  
     incineration ..... 3 (49)  
     treatment (eg. neutralizing)..... 3 (50)  
     reprocessing/recycling ..... 3 (51)  
     other (specify) ..... 3 (52)
8. Users of this site (1=this facility; 2=this facility and other company facilities only; 3=this company and others; 9=don't know) ..... 2 (53)

LIST NAMES AND ADDRESSES OF OTHER KNOWN USERS BELOW

FORM 3 CONTINUED ON SECOND PAGE

(1) (30)

Page 3 - Page 3

Company Name: Allied Chemical CorporationFacility Name: Moundsville PlantSite Name: Browning-Ferris Industries
 (1-3)
ORIGINAL  
(Red)

3. Components (or characteristics) of process waste from this facility disposed at site: (1=present in waste; 2=not present in waste; 3=don't know)

FILL IN EVERY BLOCK SPACE

Acid solutions, with pH < 3	[ ]	(10)
pickling liquor	[ ]	(11)
metal plating waste	[ ]	(12)
circuit etchings	[ ]	(13)
inorganic acid manufacture	[ ]	(14)
organic acid manufacture	[ ]	(15)
Base solutions, with pH > 10	[ ]	(16)
caustic soda manufacture	[ ]	(17)
nylon and similar polymer generation	[ ]	(18)
scrubber residual	[ ]	(19)
Heavy metals & trace metals (bonded organically & inorganically)	[ ]	(20)
arsenic, selenium, antimony	[ ]	(21)
mercury	[ ]	(22)
iron, manganese, magnesium	[ ]	(23)
zinc, cadmium, copper, chromium (trivalent)	[ ]	(24)
chromium (hexavalent)	[ ]	(25)
lead	[ ]	(26)
Radioactive residues, > 3 pico curies/liter	[ ]	(27)
uranium residuals & residuals for UF <sub>6</sub> recycling	[ ]	(28)
lanthanide series elements and rare earth salts	[ ]	(29)
phosphate slag	[ ]	(30)
thorium	[ ]	(31)
radium	[ ]	(32)
other alpha, beta & gamma emitters	[ ]	(33)
Organics	[ ]	(34)
pesticides & intermediates	[ ]	(35)
herbicides & intermediates	[ ]	(36)
fungicides & intermediates	[ ]	(37)
rodenticides & intermediates	[ ]	(38)
halogenated aliphatics	[ ]	(39)
halogenated aromatics	[ ]	(40)
acrylates & latex emulsions	[ ]	(41)
PCB/PBB's	[ ]	(42)
amides, amines, imides	[ ]	(43)
plasticizers	[ ]	(44)
resins	[ ]	(45)
elastomers	[ ]	(46)
solvents polar (except water)	[ ]	(47)
carbon tetrachloride	[ ]	(48)
trichloroethylene	[ ]	(49)
other solvents nonpolar	[ ]	(50)
solvents halogenated aliphatic	[ ]	(51)
solvents halogenated aromatic	[ ]	(52)
oils and oil sludges	[ ]	(53)
esters and ethers	[ ]	(54)
alcohols	[ ]	(55)
ketones & aldehydes	[ ]	(56)
dioxins	[ ]	(57)
Inorganics	[ ]	(58)
salts	[ ]	(59)
mercaptans	[ ]	(60)
Misc.	[ ]	(61)
pharmaceutical wastes	[ ]	(62)
paints & pigments	[ ]	(63)
catalysts (eg. vanadium, platinum, palladium)	[ ]	(64)
asbestos	[ ]	(65)
shock sensitive wastes (eg. nitrated toluenes)	[ ]	(66)
air water reactive wastes (eg. P <sub>2</sub> , aluminum chloride)	[ ]	(67)
wastes with flash point below 100° F.	[ ]	(68)

## FORM 2: DISPOSAL SITE INFORMATION

(1-3)

COMPLETE THIS FORM FOR EVERY SITE (COMMONLY THE LOCATION OF THIS FACILITY AS ONE SITE) USED FOR THE DISPOSAL OF PROCESS WASTES GENERATED BY THIS FACILITY SINCE 1950.

ORIG.  
(Rec)

Company Name: Allied Chemical Corporation  
 Facility Name: Moundsville Plant  
 Name of Site: Robert Ross & Sons  
 Address of Site: 194 Giles Road  
                   no.                  street  
                   Grafton,                  Ohio                  44044  
                   city                  state                  zip code  
 Name of Owner (while used by facility): Robert Ross & Sons  
 Address: 194 Giles Road  
                   no.                  street  
                   Grafton,                  Ohio                  44044  
                   city                  state                  zip code  
 Current Owner (if different from above):  
 Address: \_\_\_\_\_  
                   no.                  street  
                   \_\_\_\_\_                  \_\_\_\_\_                  \_\_\_\_\_

1. Location (1= the property on which facility is located; 2= off-site)..... [2] (10)
2. Ownership at time of use (1= company ownership; 2=private but not company ownership) 3=public ownership) ..... [2] (11)
3. Current status (1= closed; 2= still in use; 3=don't know) ..... [2] (12)  
     IF CLOSED, specify year closed ..... 19[7] (13-14)
4. Year first used for process waste from this facility ..... 19[7] (15-16)
5. Year last used for process waste from this facility (enter "79" if still in use) ..... 19[7] (17-19)
6. Total amount of process waste from this facility disposed at site:  
     thousand gallons ..... [ ] (19-26)  
     hundred tons ..... [ ] (27-33)  
     thousand cubic yards ..... [ ] (34-41)
7. Specify type(s) of disposal method(s) used at site and whether method is still in use (1=currently in use; 2=no longer in use; 3=never used; 9=don't know)  
     landfill, mono industrial waste ..... [2] (42)  
     landfill, mixed industrial waste ..... [2] (43)  
     landfill, drummed waste ..... [2] (44)  
     landfill, municipal refuse co-disposed ... [2] (45)  
     pits/ponds/lagoons ..... [2] (46)  
     deep well injection ..... [2] (47)  
     land farming ..... [2] (48)  
     incineration ..... [2] (49)  
     treatment (eg. neutralizing)..... [2] (50)  
     reprocessing/recycling ..... [2] (51)  
     other (specify) ..... [2] (52)
8. Users of this site (1=this facility; 2=this facility and other company facilities only; 3=this company and others; 9=don't know) ..... [2] (33)

LIST NAMES AND ADDRESSES OF OTHER KNOWN USERS BELOW

FORM R - Page 2

Company Name: Allied Chemical CorporationFacility Name: Moundsville PlantSite Name: Robert Ross & Sons

1	2	3	4	5	6	7	8	9	10	11	12
(DO NOT USE)											(1-3)

ORIGINAL  
(Red)

2. Components (or characteristics) of process waste from this facility disposed at site: (1-present in waste; 2-not present in waste; 3-don't know)

FILL IN EVERY BLOCK SPACE

Acid solutions, with pH < 3	12	(10)
pickling liquor	12	(11)
metal plating waste	12	(12)
circuit etchings	12	(13)
inorganic acid manufacture	12	(14)
organic acid manufacture	12	(15)
Base solutions, with pH > 10	12	(16)
caustic soda manufacture	12	(17)
nylon and similar polymer generation	12	(18)
scrubber residual	12	(19)
Heavy metals & trace metals (bonded organically & inorganically)	12	(20)
arsenic, selenium, antimony	12	(21)
mercury	12	(22)
iron, manganese, magnesium	12	(23)
zinc, cadmium, copper, chromium (trivalent)	12	(24)
chromium (hexavalent)	12	(25)
lead	12	(26)
Radioactive residues, > 3 pico curies/liter	12	(27)
uranium residuals & residuals for U <sub>2</sub> F <sub>6</sub> recycling	12	(28)
lanthanide series elements and rare earth salts	12	(29)
phosphate slag	12	(30)
thorium	12	(31)
radium	12	(32)
other alpha, beta & gamma emitters	12	(33)
Organics	12	(34)
pesticides & intermediates	12	(35)
herbicides & intermediates	12	(36)
fungicides & intermediates	12	(37)
rodenticides & intermediates	12	(38)
halogenated aliphatics	12	(39)
halogenated aromatics	12	(40)
acrylates & latex emulsions	12	(41)
PCB/PBB's	12	(42)
amides, amines, imides	12	(43)
plasticizers	12	(44)
resins	12	(45)
elastomers	12	(46)
solvents polar (except water)	12	(47)
carbon tetrachloride	12	(48)
trichloroethylene	12	(49)
other solvents nonpolar	12	(50)
solvents halogenated aliphatic	12	(51)
solvents halogenated aromatic	12	(52)
oils and oil sludges	12	(53)
esters and ethers	12	(54)
alcohols	12	(55)
ketones & aldehydes	12	(56)
dioxins	12	(57)
Inorganics	12	(58)
salts	12	(59)
mercaptans	12	(60)
Misc	12	(61)
pharmaceutical wastes	12	(62)
paints & pigments	12	(63)
catalysts (eg. vanadium, platinum, palladium)	12	(64)
asbestos	12	(65)
shock sensitive wastes (eg. nitrated toluenes)	12	(66)
air water reactive wastes (eg. P <sub>4</sub> , aluminum chloride)	12	(67)
wastes with flash point below 100° F.	12	(68)

FORM OF WASTE INFORMATION[ ] [ ] [ ] [ ] (1-5)  
(TOTAL USE)ORIGINAL  
(100)

Provide a complete list of all firms, or independent contractors, including the company and its affiliates or subsidiaries, used to remove process wastes from this facility since 1950.

Company Name: Allied Chemical CorporationFacility Name: Mountville Plant

<u>Name of Firm or Contractor</u>	<u>Address</u>	<u>ICC # (If Known)</u>	<u>Years Used</u>
Chemical Leasing Tank Lines, Inc.	P. O. Box 300 Downtown, Pa. 19135		1973, '74, '75, '76, '78, '79
Matlack Inc.	10 West Baltimore Ave. Lansdowne, Pa. 19050		1976, '78, '79
Chassis Systems (Rail)	Two North Charles St. Baltimore, Md. 21201		<del>1974, '79</del>
Transenvironmental Corporation (Contracted by Chem-Dyne)	500 Ford Blvd. Hamilton, Ohio 45011		<del>1974, '78, '79</del>
Ohio Liquid Disposal, Inc.	504 Liberty Street Freemont, Ohio 43420		1978, '79
Browning-Ferris Industries	U.S. Highway 21 P.O. Box 6400 Charleston, W. Va. 25301		1977



Certified Return Receipt Requested

May 16, 1986

Stephen R. Wassersug, Director  
Hazardous Waste Management Division  
USEPA III - 3HW31  
841 Chestnut Building  
Philadelphia, PA 19107

Re: Allied Corporation  
Moundsville, WV ("Allied Park")  
WVD 00 437 4021

Dear Mr. Wassersug:

Please refer to your request for information dated March 5, 1986 received March 11, 1986. An additional thirty (30) days for our response was granted by Ms. Mary Beck of your office on April 28, 1986.

As explained to Ms. Beck, Allied sold the operating portions of its' Moundsville facility, including plant files, to LCP West Virginia and Olin Corporation in 1980 and 1981 respectively. A section, commonly referred to as "Allied Park", remained under Allied ownership. The responses contained in this submittal address only "Allied Park" and are based on information readily available in our files as well as discussions with present and former Allied employees.

Allied executed a Consent Decree, No. 81-C-554-N, with the State of West Virginia on October 22, 1981 for the closure of the solid waste management units (SWMU's) herein discussed. Closure plans were approved by the Chief of the Division of Water Resources of the West Virginia Department of Natural resources. The status of the various closures are described in the following responses to your letter:

1. Enclosed is a topographic map of Allied Corporation property at a scale of one inch equal to 100 feet. It shows the facility and a distance of more than 1000 feet around the facility except for the area bounded by the Ohio River. The Allied property consists of approximately fifty-two (52) acres. The approximate locations of existing and former solid waste management units (SWMU's) have been labeled on the drawing. A reduced copy (11x17) section titled Map of Allied Park is also enclosed. It provides a metes and bounds description of Allied Park and thus a more accurate location of the SWMU's.
2. The SWMU's described below have been closed or are in the

ORIGINAL  
(Red)Stephen R. Wassersug  
Page 2

process of closure. There are no active facilities at the site for which we are seeking a permit to operate.

Original Trash Dump - From the start of Allied's operation of the Moundsville North Plant in 1953 until about 1957, the plant trash dump was located in an area of the TDI residue pile. This area has been graded, capped with two (2) feet of clay and one (1) foot of topsoil, contoured for positive drainage and seeded as part of the TDI Residue Pile closure.

Trash Dump - From 1957 to April 1980, an area south of Ranney Well "E" on Allied property was used as a trash dump. Aniline residue was burned in open pits in this dump until approximately 1972. Trash in the dump, including certain chemical wastes, was open burned until the early 1970's. The trash dump was covered periodically with earth and boiler ash from the Moundsville South Plant. Allied discontinued on site disposal of trash in April 1980. This area was capped with clay and soil, contoured for positive drainage and seeded.

NAD Pond - This was an unlined settling basin that was in operation from 1965 to 1977. It was utilized to settle solids from acidic organic and inorganic process wastewaters that had been treated with lime. It was also used from June 1974 to June 1977 for the effluent from the Formaldehyde pond. Stabilized material and additional fill was placed in this pond. It was covered with clay and soil, contoured and seeded.

Formaldehyde Pond - This is a basin that was originally lined with polyethylene and used to settle solids from lime neutralized acidic organic and inorganic wastewaters. It was taken out of this service after operation for less than one year (approximately 1971-1972) due to failure of the liner. In June 1974, this pond was placed in service without repairing the liner to settle organic solids from toluene diamine process wastewaters that had been reacted with formaldehyde. From July 1977 to October 1984 the effluent from this pond was pumped to an NPDES organic treatment system. Allied has submitted a closure plan for this pond in accordance with a Consent Decree with the State of West Virginia. The closure plan has also been submitted to USEPA III. Capacity is estimated at about 8 million gallons. An amended Part A for this

ORIGINAL  
(Red)Stephan R. Wassersug  
Page 3

pond was filed with USEPA III on April 21, 1986.

Blackwater Pond - This is an EPDM rubber lined holding basin that was in operation from 1972 to October 1984 for collection of untreated wastewater from the toluene diamine and methylene dianiline processes. Organic wastewater was pumped from this pond, reacted with formaldehyde and discharged into the Formaldehyde pond for clarification. Allied has submitted a closure plan for this pond in accordance with the aforementioned Consent Decree. The holding capacity of this pond is approximately 24 million gallons. An amended Part A was filed as for the Formaldehyde pond.

Spill Diversion Pond - This unlined pond was installed in 1977 as a retention pond for stormwater runoff and once-through cooling water from the North Plant. It was also intended to be used as a diversion pond to prevent a spill from entering outfall 004. Any effluent from this pond was pumped back to the plant. The capacity of the pond was approximately 2 million gallons. Use of the pond was discontinued in October 1984. The stormwater in the pond was drained through outfall 004 after which the pond was filled with dirt, capped with 2 feet of clay and 1 foot of topsoil, contoured and seeded.

Line Pond - This pond was an unlined basin that contained an estimated 10,000 tons of calcium oxide residue from an acetylene generation process operated by Union Carbide - Linda Division between 1956 and 1967. The area has been graded with on site clay and soil to provide positive drainage sheet flow to the Ohio River. It will be seeded as weather permits.

TDI Residue - There were approximately 90,000 tons of by-product residues from TDI/MDA manufacturing processes stored in the indicated area. USEPA conditionally delisted Allied's TDI Residue as a hazardous waste. All usable residue was removed to dirt base and sold as fuel. The area was covered with 2 feet of clay and 1 foot of topsoil, contoured for positive drainage and seeded.

Temporary Settling Pond - This pond originated from two smaller units lined with polyethylene. They were installed as temporary settling ponds pending work on the permanent NPDES ponds in 1981. The pond contents and liners were sent off site for disposal. The common

ORIGINAL  
(Red)

Stephen R. Wassersug  
Page 4

dike wall was removed and the pond filled. The area was capped with clay, topsoil and seeded.

The only engineering drawing which could be found is believed to be one of the Blackwater Pond. It is titled "Waste Pond Layout, As Built Survey, MC-13437" and is submitted herewith.

With respect to closure plans for closed facilities or those submitted for future closures, there are no plans in the nature of drawings or reports which were submitted to WVDNR. Closure was described in the same manner as delineated in the foregoing discussions of the individual SWMU's.

3. We believe the descriptions of wastes included in our response to question 2 and the information included in our amended Part A application should provide the available answers to this question.

4. There are no known specific releases which can be described or quantified beyond the descriptions in our response to question 2.

A hydrogeological study of the site was conducted in May 1978 by Geraghty & Miller, Inc.. The study concluded that groundwater contamination was occurring from some of the SWMU's. However, pumping of Ranney wells along the Ohio river was preventing off site migration of those contaminants by establishing a cone of influence which induced the flow of river water onto Allied property. Copies of the G & M report are included.

A water table elevation study was conducted in 1981-1982 by Geraghty & Miller which concluded that contaminants were not migrating off site. Copies of the report are included. Allied is required to monitor water levels and to maintain pumping of the Ranney wells under the Consent Decree. Allied has included similar conditions in its' sales agreements with LCP and Olin.

Closure plans approved by WVDNR require Allied to submit groundwater analyses to the agency on a quarterly basis. A compilation of those analyses is included herewith.

We hope the information we have submitted is sufficient to satisfy your requirements. Allied has previously submitted correspondence and reports to USEPA which may contain information related to your request. Specific submittals are as follows and are incorporated by reference as part of this response:

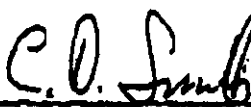
ORIGINAL  
(Red)Stephen B. Wasserman  
Page 5

August 1, 1980- Notification of Hazardous Waste Activity  
Nov. 4, 1980- RCRA Part A Application  
Jan. 16, 1981- Amended Notification to include TDI  
May 6, 1981- Amended Part A to include TDI Residue  
June 8, 1981- Section 103(c) Superfund Notification  
July 11, 1985- Letter to Douglas Donor, USEPA III  
Feb. 25, 1986- Letter to Robert Greaves, USEPA III  
April 21, 1986- Amended Part A to include K112 waste

In addition to the above, Allied has, over the years, submitted various reports and correspondence to USEPA which may contain information related to the SWMU's. Also, Allied believes that others, including but not limited to, the State of West Virginia, LCP West Virginia, Inc. and Olin Corporation may have submitted reports, correspondence or other information related to the SWMU's. This unspecified information is likewise incorporated by reference herein.

Should you have any questions, please contact Mr. L. A. Mattioli at (302) 792-8604.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Charles D. Smith  
Director of Manufacturing

cc: Mr. David W. Robinson, WVDNR



L. A. MATTIOLI  
ALLIED-SIGNAL INC.  
P. O. BOX 1017  
MARCUS HOOK PA 19061

INAL  
ed)

January 4, 1994

Certified RRR P525 294 646

L. Eli McCoy, Ph.D., Chief  
Office of Water Resources  
Division of Environmental Protection  
State of West Virginia  
1201 Greenbrier Street  
Charleston, WV 25311

Re: Allied-Signal Inc.  
Moundsville WV Facility  
Civil Action No. 81-C-554N  
Fourth Quarter 1993 Well Analyses

Dear Dr. McCoy:

Enclosed are the Fourth Quarter 1993 analytical results for the  
above referenced facility.

Please call me at (302) 791-6770 if you have any questions.

Very truly yours,

L. A. Mattioli, Manager  
Environmental Quality

MDV4.004

cc: Mark Rudolph, Esq., WVDNR (with McCoy copy)  
Naresh Shah, WVDNR  
John Britvec, WVDNR, Fairmont, WV (with enc.)

bcc: J. E. Cooper, MEY-4 (with enc.)  
D. Cooke, AB-3 "  
D. P. DeNoon, Hanlin "  
G. M. Bahn, Olin "  
Olin Contract Admin. "

*North Plant*

ORIG  
(R)

## GLOSSARY OF BNA DATA

ORIGINAL

(Red)

### DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.
- X** = Additional qualifiers used as required are explained in the case narrative.
- NQ** = Result qualitatively confirmed but not able to quantify.

### ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP** = Indicates Spiked Compound.

Cust ID: WELL NO. 22A WELL NO. 22A WELL NO. 22A WELL NO. 22B WELL NO. 23A WELL NO. 24A

Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	2.00	2.00	2.00	2.00	1.00	20.0
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Nitrobenzene-d5	74 %	77 %	81 %	73 %	70 %	12 * %
Surrogate	2-Fluorobiphenyl	72 %	74 %	75 %	68 %	62 %	82 %
Recovery	Toluene-d8	47 %	47 %	47 %	47 %	51 %	61 %
=====f1=====f1=====f1=====f1=====f1=====							
1,2-Dichlorobenzene		2600	2600	2600	650	19 J	2000 U
1,3-Dichlorobenzene		100 J	100 J	96 J	200 U	20 U	2000 U
1,4-Dichlorobenzene		770	60 %	60 %	110 J	12 J	2000 U
2,3-Dinitrotoluene		200 U	200 U	200 U	200 U	20 U	2000 U
2,4-Dinitrotoluene		200 U	56 %	59 %	86 J	20 U	2000 U
2,6-Dinitrotoluene		200 U	200 U	200 U	210 J	20 U	2000 U
2-Nitrotoluene		200 U	200 U	200 U	200 U	20 U	2000 U
3-Nitrotoluene		200 U	200 U	200 U	200 U	20 U	2000 U
4-Nitrotoluene		200 U	200 U	200 U	200 U	20 U	2000 U
Nitrobenzene		200 U	200 U	200 U	200 U	20 U	2000 U
Chlorobenzene		3800	3700	3800	3100	32 J	4000 U
2,6-Diaminotoluene		130 J	130 J	160 J	3900	410	27000
Aniline		200 U	200 U	200 U	200 U	3 J	40000

\* = Outside of EPA CLP QC limits.

**RFW Batch Number: 9311L661**

Client: ALLIED-MOUNDSVILLE

Work order: 01273010002 Page: 2a

Cust ID: WELL NO. 24C WELL NO. 25A WELL NO. 25B WELL NO. 25C WELL NO. 26A WELL NO. 26C

Sample Information	RFW#:	005 WATER	006 WATER	007 WATER	008 WATER	009 WATER	010 WATER
	D.F.:	20.0	2.00	20.0	20.0	1.00	1000
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Nitrobenzene-d5		11 %	73 %	62 %	86 %	73 %	D %
2-Fluorobiphenyl		81 %	67 %	59 %	54 %	78 %	D %
Toluene-d8		47 %	54 %	40 %	50 %	60 %	D %
-----f1-----f1-----f1-----f1-----f1-----f1-----							
1,2-Dichlorobenzene		2000 U	780 J	460 J	290 J	15 J	100000 U
1,3-Dichlorobenzene		2000 U	15 J	2000 U	2000 U	10 U	100000 U
1,4-Dichlorobenzene		2000 U	100	2000 U	2000 U	3 J	100000 U
2,3-Dinitrotoluene		2000 U	40 U	2000 U	2000 U	10 U	100000 U
2,4-Dinitrotoluene		2000 U	40 U	2000 U	2000 U	10 U	100000 U
2,6-Dinitrotoluene		2000 U	40 U	2000 U	2000 U	10 U	100000 U
2-Nitrotoluene		2000 U	40 U	2000 U	2000 U	10 U	100000 U
3-Nitrotoluene		2000 U	40 U	2000 U	2000 U	10 U	100000 U
4-Nitrotoluene		2000 U	40 U	2000 U	2000 U	10 U	100000 U
Nitrobenzene		2000 U	40 U	700 J	28000	3 J	270000
Chlorobenzene		4000 U	120	960 J	1600 J	20 U	200000 U
2,6-Diaminotoluene		36000	40 U	2000 U	2000 U	46	920000
Aniline		43000	120	25000	35000	12 J	1400000

\*= Outside of EPA CLP QC limits.

**ORIGINAL**  
**(Red)**

RFW Batch Number: 9311L661

Client: ALLIED-MOUNDSVILLE

Work Order: 01273010002 Page: 3a

Cust ID: WELL NO. 28A WELL NO. 28C WELL NO. 29B WELL NO. 29C SBLK SBLK BS

Sample Information	RFW#:	011	012	013	014	93LE2056-MB1	93LE2056-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	20.0	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Nitrobenzene-d5	49 %	71 %	51 %	2 %	70 %	77 %
Surrogate	2-Fluorobiphenyl	73 %	60 %	72 %	68 %	62 %	55 %
Recovery	Toluene-d8	47 %	31 %	53 %	47 %	30 %	26 %
-----f1-----f1-----f1-----f1-----f1-----f1-----f1							
1,2-Dichlorobenzene		37000	280	59	9 J	10 U	10 U
1,3-Dichlorobenzene		990 J	14 J	2 J	10 U	10 U	10 U
1,4-Dichlorobenzene		6500	60	9 J	2 J	10 U	40 %
2,3-Dinitrotoluene		2000 U	20 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene		2000 U	20 U	10 U	10 U	10 U	70 %
2,6-Dinitrotoluene		2000 U	20 U	10 U	10 U	10 U	10 U
2-Nitrotoluene		2000 U	20 U	10 U	10 U	10 U	10 U
3-Nitrotoluene		2000 U	20 U	10 U	10 U	10 U	10 U
4-Nitrotoluene		2000 U	20 U	10 U	10 U	10 U	10 U
Nitrobenzene		2000 U	4 J	2 J	10 U	10 U	10 U
Chlorobenzene		970 J	4 J	3 J	20 U	20 U	20 U
2,6-Diaminotoluene		3700 J	41 J	10 U	4 J	10 U	10 U
Aniline		7900	50 J	58	13 J	10 U	10 U

\*\* Outside of EPA CLP QC limits.

ORIGINAL  
(Red)

ORIGINAL  
(Red)

Roy F. Weston, Inc. - Lionville Laboratory  
BNA ANALYTICAL DATA PACKAGE FOR  
ALLIED-MOUNDSVILLE

DATE RECEIVED: 11/16/93

RFW LOT # :9311L661

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
WELL NO. 22A	001	W	93LE2056	11/15/93	11/18/93	11/19/93
WELL NO. 22A	001 MS	W	93LE2056	11/15/93	11/18/93	11/19/93
WELL NO. 22A	001 MSD	W	93LE2056	11/15/93	11/18/93	11/19/93
WELL NO. 22B	002	W	93LE2056	11/15/93	11/18/93	11/19/93
WELL NO. 23A	003	W	93LE2056	11/15/93	11/18/93	11/19/93
WELL NO. 24A	004	W	93LE2056	11/15/93	11/18/93	11/22/93
WELL NO. 24C	005	W	93LE2056	11/15/93	11/18/93	11/22/93
WELL NO. 25A	006	W	93LE2056	11/15/93	11/18/93	11/22/93
WELL NO. 25B	007	W	93LE2056	11/15/93	11/18/93	11/20/93
WELL NO. 25C	008	W	93LE2056	11/15/93	11/18/93	11/22/93
WELL NO. 26A	009	W	93LE2056	11/15/93	11/18/93	11/20/93
WELL NO. 26C	010	W	93LE2056	11/15/93	11/18/93	11/22/93
WELL NO. 28A	011	W	93LE2056	11/15/93	11/18/93	11/20/93
WELL NO. 28C	012	W	93LE2056	11/15/93	11/18/93	11/20/93
WELL NO. 29B	013	W	93LE2056	11/15/93	11/18/93	11/20/93
WELL NO. 29C	014	W	93LE2056	11/15/93	11/18/93	11/20/93

LAB QC:

SBLK	MB1	W	93LE2056	N/A	11/18/93	11/19/93
SBLK	MB1 BS	W	93LE2056	N/A	11/18/93	11/19/93

## Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 2

Client ALLIED - GEORGE  
 Est. Final Proj. Sampling Date  
 Work Order # 1223-00-102-9999-00  
 Project Contact/Phone # 302-792-8604  
 AD Project Manager LA. MATTIOLIS  
 OC 500019 Del STD TAT 30 Days  
 Date Rec'd 11-16-91 Date Due 12/16/91  
 Account # ALLIED-MOL

Refrigerator #

# Type Container

Liquid

Solid

Volume

Liquid

Solid

Preservatives

ANALYSES  
REQUESTED

ORGANIC

INORG

VOA

BNA

Pest

PCB

Merp

Metals

Z

CL

PH

SP

MATRIX  
CODES:

S - Sol  
 SE - Sediment  
 SO - Solid  
 SL - Sludge  
 W - Water  
 O - Oil  
 A - Air  
 DS - Drum  
 Sols  
 DL - Drum  
 Liquids  
 L - EP/TCLP  
 Leachate  
 WL - Wipe  
 X - Other  
 F - Fish

Lab  
ID

Client ID Description

Matrix  
OC  
Chosen  
(✓)  
MS MSO

Matrix

Date  
CollectedTime  
Collected

WESTON Analytics Use Only

## FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

## DATE/REVISIONS:

1.

2.

3.

4.

5.

6.

## WESTON Analytics Use Only

Samples were:

1) Shipped ☒ or  
 Hand Delivered

Airbill # 283457112

2) Ambient ☒ Chilled

3) Received in Good  
 Condition ☒ Y or N

4) Labels Indicate  
 Properly Preserved ☒ Y or N

5) Received Within  
 Holding Times ☒ Y or N

COC Tape was:

1) Present on Outer  
 Package Y or ☒ N

2) Unbroken on Outer  
 Package Y or ☒ N

3) Present on Sample  
 Y or ☒ N

4) Unbroken on  
 Sample Y or ☒ N

COC Record Present  
 Upon Sample Rec'd ☒ Y or N

Relinquished  
byReceived  
by

Date

Time

Relinquished  
byReceived  
by

Date

Time

Discrepancies Between  
Samples Labels and  
COC Record? Y or ☒ N

NOTES

Original  
Rec'd

WESTON Analytics Use Only

9311L661

## Custody Transfer Record/Lab Work Request

WESTON

Page 2 of 2

Client <u>ALLIED-ETL</u>		Refrigerator #			5		2		1		2	
Est. Final Proj. Sampling Date		# Type Container	Liquid									
Work Order # <u>1273-10-02</u>		Solid										
Project Contact/Phone # <u>302-792-8604</u>		Liquid										
AD Project Manager <u>L.A. MATTEOLI</u>		Solid										
QC		Preservatives										
Date Rec'd <u>11-16-93</u>		ANALYSES REQUESTED →		ORGANIC				INORG				
Date Due				VOA	BNA	Pest/PCB	Herb	Metal	Zn	CL	PH	SP
Account #				BN								

MATRIX CODES:	Lab ID	Client ID Description	Matrix QC Chosen (1/)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only																
			MS	MSD																				
S - Soil	011	WILLIAMS 28A			W	11-16-93	AM																	
SE - Sediment	012	28C			I																			
SO - Solid	013	29B			I																			
SL - Sludge	014	29C			I																			
W - Water																								
O - Oil																								
A - Air																								
DS - Drum																								
Solids																								
DL - Drum																								
Liquids																								
L - EPICLP																								
Leachate																								
WI - Wipe																								
X - Other																								
F - Fish																								

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

ORIGINAL REWHITTON

DATE REVISIONS:

1	
2	
3	
4	
5	
6	

WESTON Analytics Use Only

Samples were	COC Tape was
1) Shipped ___ or	1) Present on Outer
Hand Delivered ___	Package Y or N
Arbit #	2) Broken on Outer
	Package Y or N
2) Ambient or Chilled	3) Present on Sample
	Y or N
3) Received in Condition Y or N	4) Unbroken on
	Sample Y or N
4) Labels Indicate Property Preserved Y or N	COC Record Present
	Upon Sample Rec'd
5) Received Within Holding Times Y or N	Y or N

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FLDAX	28/	11-16-93			28/	11-16-93	



ROY F. WESTON, INC.  
LIONVILLE ANALYTICAL LABORATORY  
ANALYTICAL CASE NARRATIVE

ORIGINAL  
(Red)

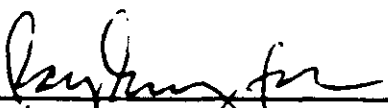
Client : ALLIED-MOUNDSVILLE  
RFW# : 9311L661

W.O. #: 01273-010-002-9999-00  
Date Received: 11-16-93

INORGANIC

The following is a summary of the quality control results and a description of any problems encountered during the analysis of this batch of samples:

1. All sample holding times as required by 40CFR136 were met.
2. All preparation blank results were below the required detection limits.
3. All calibration verification checks were within the required control limits of 90-110%. Calibration verification is performed using independent standards.
4. Matrix spike recoveries are summarized on the Inorganic Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limits. All %RPD were within the 20% guidance limit.
5. Replicate results are summarized on the Inorganic Precision Report contained within this document. All results were within the 20% RPD guidance limit.
6. The analytical methods applied by the laboratory, unless otherwise requested, for all inorganic analyses are derived from the USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020) and Standard Methods for the Examination of Water and Wastewater 16 ed.

  
J. Peter Hershey, Ph.D.  
Laboratory Manager  
Lionville Analytical Laboratory

11.30.93  
Date

ROY F. WESTON, INC.  
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

- U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- \* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

- MB - Method or preparation blank.
- MS - Matrix Spike.
- MSD - Matrix Spike Duplicate.
- REP - Sample Replicate.
- LC - Indicates a method LCS or Blank Spike.
- NC - Not calculable, result below the detection limit.

A suffix of -R or -S following these codes indicates a replicate or spike analysis respectively.

NOTES

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis with the exception of Extractable Organic Halides, which are reported on a wet weight basis.

ORIGINAL  
(Red)

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 11/30/93

CLIENT: ALLIED-MOUNDSVILLE

WESTON BATCH #: 9311L661

WORK ORDER: 01271-010-002-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	WELL NO. 22A	Chloride	121	MG/L	5.0	20.0
		pH	7.1	PH UNITS	0.010	1.0
		Specific Conductance	1330	UMHOS/CM	1.0	1.0
-002	WELL NO. 22B	Chloride	94.0	MG/L	5.0	20.0
		pH	7.0	PH UNITS	0.010	1.0
		Specific Conductance	1200	UMHOS/CM	1.0	1.0
03	WELL NO. 23A	Chloride	39.6	MG/L	2.5	10.0
		pH	8.0	PH UNITS	0.010	1.0
		Specific Conductance	480	UMHOS/CM	1.0	1.0
-004	WELL NO. 24A	Chloride	355	MG/L	12.5	50.0
		pH	7.1	PH UNITS	0.010	1.0
		Specific Conductance	2950	UMHOS/CM	1.0	1.0
-005	WELL NO. 24C	Chloride	528	MG/L	25.0	100
		pH	7.0	PH UNITS	0.010	1.0
		Specific Conductance	1810	UMHOS/CM	1.0	1.0
-006	WELL NO. 25A	Chloride	140	MG/L	5.0	20.0
		pH	9.6	PH UNITS	0.010	1.0
		Specific Conductance	526	UMHOS/CM	1.0	1.0
-007	WELL NO. 25B	Chloride	473	MG/L	12.5	50.0
		pH	6.7	PH UNITS	0.010	1.0
		Specific Conductance	1970	UMHOS/CM	1.0	1.0
-008	WELL NO. 25C	Chloride	999	MG/L	50.0	200
		pH	6.5	PH UNITS	0.010	1.0
		Specific Conductance	3650	UMHOS/CM	1.0	1.0
-009	WELL NO. 26A	Chloride	400	MG/L	12.5	50.0
		pH	9.3	PH UNITS	0.010	1.0
		Specific Conductance	1620	UMHOS/CM	1.0	1.0
-010	WELL NO. 26C	Chloride	1110	MG/L	125	500
		pH	7.7	PH UNITS	0.010	1.0
		Specific Conductance	2630	UMHOS/CM	1.0	1.0

ORIGINAL  
(Red)

ROY P. WESTON INC.

INORGANIC DATA SUMMARY REPORT 11/30/93

CLIENT: ALLIED-MOUNDSVILLE  
WORK ORDER: 01273-010-002-9999-00

WESTON BATCH #: 9111L661

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	WELL NO. 28A	Chloride	16.0	MG/L	2.5	10.0
		pH	7.8	PH UNITS	0.010	1.0
		Specific Conductance	474	UMHOS/CM	1.0	1.0
-012	WELL NO. 28C	Chloride	18.9	MG/L	2.5	10.0
		pH	7.4	PH UNITS	0.010	1.0
		Specific Conductance	486	UMHOS/CM	1.0	1.0
3	WELL NO. 29B	Chloride	123	MG/L	5.0	20.0
		pH	7.1	PH UNITS	0.010	1.0
		Specific Conductance	605	UMHOS/CM	1.0	1.0
-014	WELL NO. 29C	Chloride	961	MG/L	50.0	200
		pH	6.3	PH UNITS	0.010	1.0
		Specific Conductance	2580	UMHOS/CM	1.0	1.0

ORIGINAL  
(2nd)

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 11/30/93

CLIENT: ALLIED-MOUNDSVILLE  
WORK ORDER: 01271-010-002-9999-00

WESTON BATCH #: 9311L661

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK10	93LCL078-MB1	Chloride	0.25	u MG/L	0.25	1.0
BLANK20	93LCL078-MB2	Chloride	0.25	u MG/L	0.25	1.0
BLANK10	93LSP138-MB1	Specific Conductance	1.0	u UMMS/CM	1.0	1.0
BLANK20	93LSP138-MB2	Specific Conductance	1.0	u UMMS/CM	1.0	1.0

ORIGINAL  
(Red)

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 11/10/93

CLIENT: ALLIED-MOUNDSVILLE  
WORK ORDER: 01273-010-C02-9999-00

WESTON BATCH #: 93111661

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	WELL NO. 23A	Chloride	92.5	19.6	50.0	106	10.0
		Chloride MSD	94.8	19.6	50.0	110	10.0
BLANK10	93LCL078-MB1	Chloride	5.3	0.25u	5.0	106	1.0
		Chloride MSD	5.2	0.25u	5.0	104	1.0
BLANK20	93LCL078-MB2	Chloride	5.5	0.25u	5.0	110	1.0
BLANK10	93LSP138-MB1	Specific Conductance	148	1.0 u	147	101	1.0
		Spec Conductance MSD	148	1.0 u	147	101	1.0
BLANK20	93LSP138-MB2	Specific Conductance	148	1.0 u	147	100	1.0

ORIGINAL  
(Red)

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 11/30/93

CLIENT: ALLIED-MOUNTAINVILLE

WESTON BATCH #: 9311L661

WORK ORDER: 01273-010-001-4999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 SPIKE#2		MRPD
			%RECOV	%RECOV	
001	WELL NO. 10A	Chloride	106	110	4.1
BLANK10	93LC078-MB1	Chloride	106	104	1.6
BLANK10	93LEP108-MB1	Specific Conductance	101	101	0.25

ORIGINAL  
(Red)

ROY P. WESTON INC.

INORGANIC PRECISION REPORT 11/30/93

CLIENT: ALLIED-MOUNDSVILLE

WESTON BATCH #: 9311L661

WORK ORDER: 01271-010-002-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	SRPD	DILUTION FACTOR(REF)
-----	-----	-----	-----	-----	-----	-----
-003REP	WELL NO. 23A	Chloride	39.6	39.6	0.15	10.0
-009REP	WELL NO. 26A	pH	9.1	9.1	0.32	1.0
		Specific Conductance	1620	1630	0.59	1.0

ORIGINAL  
(Red)

Roy F. Weston, Inc. - Lionville Laboratory  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
ALLIED-MOUNDSVILLE

DATE RECEIVED: 11/16/93

RFW LOT # :93112661

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
---------------------	-------	-----	--------	------------	-----------	----------

WELL NO. 22A

CHLORIDE	001	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	001	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	001	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 22B

CHLORIDE	002	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	002	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	002	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 23A

CHLORIDE	003	W	93LCL078	11/15/93	11/29/93	11/29/93
CHLORIDE	003 REP	W	93LCL078	11/15/93	11/29/93	11/29/93
CHLORIDE	003 MS	W	93LCL078	11/15/93	11/29/93	11/29/93
CHLORIDE	003 MSD	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	003	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	003	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 24A

CHLORIDE	004	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	004	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	004	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 24C

CHLORIDE	005	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	005	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	005	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 25A

CHLORIDE	006	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	006	W	93LPH163	11/15/93	11/16/93	11/16/93

ORIGINAL  
(Red)

Roy F. Weston, Inc. - Lionville Laboratory  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
ALLIED-MOUNDSVILLE

DATE RECEIVED: 11/16/93

RFW LOT # :9311L661

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SPECIFIC CONDUCTANCE	006	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 25B

CHLORIDE	007	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	007	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	007	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 25C

CHLORIDE	008	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	008	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	008	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 26A

CHLORIDE	009	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	009	W	93LPH163	11/15/93	11/16/93	11/16/93
PH	009 REP	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	009	W	93LSP138	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	009 REP	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 26C

CHLORIDE	010	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	010	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	010	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 28A

CHLORIDE	011	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	011	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	011	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 28C

CHLORIDE	012	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	012	W	93LPH163	11/15/93	11/16/93	11/16/93

ORIGINAL  
(Red)

Roy F. Weston, Inc. - Lionville Laboratory  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
ALLIED-MOUNDSVILLE

DATE RECEIVED: 11/16/93

RFW LOT # :9311L661

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SPECIFIC CONDUCTANCE	012	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 29B

CHLORIDE	013	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	013	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	013	W	93LSP138	11/15/93	11/16/93	11/16/93

WELL NO. 29C

CHLORIDE	014	W	93LCL078	11/15/93	11/29/93	11/29/93
PH	014	W	93LPH163	11/15/93	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	014	W	93LSP138	11/15/93	11/16/93	11/16/93

LAB QC:

CHLORIDE	MB1	W	93LCL078	N/A	11/29/93	11/29/93
CHLORIDE	MB1 BS	W	93LCL078	N/A	11/29/93	11/29/93
CHLORIDE	MB1 BSD	W	93LCL078	N/A	11/29/93	11/29/93
CHLORIDE	MB2	W	93LCL078	N/A	11/29/93	11/29/93
CHLORIDE	MB2 BS	W	93LCL078	N/A	11/29/93	11/29/93
SPECIFIC CONDUCTANCE	MB1	W	93LSP138	N/A	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	MB1 BS	W	93LSP138	N/A	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	MB1 BSD	W	93LSP138	N/A	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	MB2	W	93LSP138	N/A	11/16/93	11/16/93
SPECIFIC CONDUCTANCE	MB2 BS	W	93LSP138	N/A	11/16/93	11/16/93

ORIGINAL

(Rev) STOI Analytics Use Only

7/11/66/

## Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 2

Client <u>ALLIED - FARMER - FINE POUNDVILLE</u>		Refrigerator #		5		2		2		2	
Est. Final Proj. Sampling Date		# Type Container		Liquid		186		186		1	
Work Order # <u>1273-00-102-9999-00</u>		Volume		Liquid		750		1178		1	
Project Contact/Phone # <u>302-792-8604</u>		Preservatives		Solid		-		-		-	
AD Project Manager <u>LA. MATTIOLI/Shaun</u>		ANALYSES REQUESTED		ORGANIC		BN		INORG		CL PH SP	
OC <u>500019</u> Del <u>STD</u> TAT <u>20 Days</u>		VOA		BNA		Res/PCB		Herb		Metal	
Date Rec'd <u>11-16-92</u> Date Due <u>12/16/93</u>		Account # <u>ALLIED-MOL</u>									

MATRIX CODES:	Lab ID	Client ID Description	Matrix OC Chosen (1)		Matrix	Date Collected	Time Collected	WESTON Analytics Use Only															
			MS	MSD																			
S - Soil	001	WILLIAM 22A			W	11/16/92	AM																
SE - Sediment	002	22B																					
SO - Solid	003	23A																					
SL - Sludge	004	24A																					
W - Water	005	24C																					
O - Oil	006	25A																					
A - Air	007	25B																					
DS - Drum	008	25C																					
Solds	009	26A																					
DL - Drum	010	26C																					
Liquids																							
L - EP/TCLP																							
Leachate																							
Wt - Wipe																							
X - Other																							
F - Fish																							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS				DATE REVISIONS:				WESTON Analytics Use Only			
Special Instructions:				1				Samples were			
				2				1) Shipped <input checked="" type="checkbox"/> or			
				3				Hand Delivered			
				4				Ambil <u>263427113</u>			
				5				2) Unbroken on Outer			
				6				Package Y or <input checked="" type="checkbox"/> N			
								3) Received in Good			
								Condition <input checked="" type="checkbox"/> Y or N			
								4) Labels Indicate			
								Property Preserved			
								5) Received Within			
								Holding Times			
								COC Tape was			
								1) Present on Outer			
								Package Y or <input checked="" type="checkbox"/> N			
								2) Unbroken on Outer			
								Package Y or <input checked="" type="checkbox"/> N			
								3) Present on Sample			
								Y or <input checked="" type="checkbox"/> N			
								4) Unbroken on			
								Sample Y or <input checked="" type="checkbox"/> N			
								COC Record Present			
								Upon Sample Rec'd			
								Y or <input checked="" type="checkbox"/> N			

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FLD:R	ep	11-16-92	0845		ep	11-16-92	
		11-16-92					

Discrepancies Between Samples Labels and COC Record? Y or ☒ N

NOTES:

93112661

## Custody Transfer Record/Lab Work Request

# WESTON

Page 2 of 2

[illegible]



cc: J. E. Cooper, MEY-4 (with enc.)  
D. Cooke, AB-3 "  
D. P. DeNoon, Hanlin "  
S. M. Bahn, Olin "  
Olin Contract Admin. "

ORIGINAL  
(Red)

L. A. MATTIOLI  
ALLIED-SIGNAL INC.  
P. O. BOX 1017  
MARCUS HOOK PA 19061

October 8, 1993

Certified RRR P525 294 644

L. Eli McCoy, Ph.D., Chief  
Office of Water Resources  
Division of Environmental Protection  
State of West Virginia  
1201 Greenbrier Street  
Charleston, WV 25311

Re: Allied-Signal Inc.  
Moundsville WV Facility  
Civil Action No. 81-C-554N  
Third Quarter 1993 Well Analyses

Dear Dr. McCoy:

Enclosed are the Third Quarter 1993 analytical results for the  
above referenced facility.

Please call me at (302) 791-8771 if you have any questions.

Very truly yours,

L. A. Mattioli, Manager  
Environmental Quality

MDV3.282

cc: Mark Rudolph, Esq., WVDNR (with McCoy copy)  
Naresh Shah, WVDNR "  
John Britvec, WVDNR, Fairmont, WV (with enc.)



1 WESTON WAY  
WEST CHESTER, PA 19380-1499  
215-692-3030 • FAX: 215-430-7296

ORIGINAL  
(Red)

20 September 1993

Mr. Leon A. Mattioli  
Allied Signal Inc.  
c/o General Chemical Corporation  
6100 Philadelphia Pike  
P.O. Box 607  
Claymont, Delaware 19703

W.O. #1273-031-001

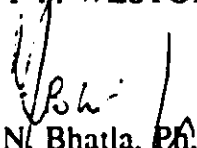
Re: Laboratory Data Summary Report for Samples Received on August 10, 1993

Dear Leon:

Attached are the groundwater analyses for the <sup>3<sup>rd</sup></sup>~~2<sup>nd</sup>~~ Quarter 1993 sampling at your Moundsville site. The samples were collected on August 4, 1993.

Very truly yours,

ROY F. WESTON, INC.

  
M. N. Bhatla, Ph.D., P.E.  
Vice President

MNB/kop  
Attachments

cc: T.Mather

Allied (2nd Q) Rep





ROY F. WESTON, INC.  
LIONVILLE ANALYTICAL LABORATORY  
ANALYTICAL CASE NARRATIVE

ORIGINAL  
(10/10)

Client: ALLIED MOUNDSVILLE  
RfW #: 9308LS25

W.O. #: 01273-031-001-9999-00  
Date Received: 08-10-93

SEMIVOLATILE

The set of samples consisted of fourteen (14) water samples collected on 08-09-93.

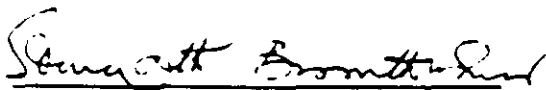
The samples were extracted on 08-12,17-93 and analyzed according to criteria set forth in SW 846 Method 8270 for Client Specified target compounds on 08-26,27,30,31-93 and 09-01-93.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. Due to high levels of target compounds, many of these samples were extracted with reduced sample volumes (volumes less than the method specified 1L). The dilution factors reported on the data summary do not include the reduced sample volumes; however, all reported sample results are correct. Complete dilution factors are as follows:

<u>Sample ID</u>	<u>Dilution Factor</u>
WELL NO. 22-A	20
WELL NO. 22-B	20
WELL NO. 23-A	2
WELL NO. 24-A	500
WELL NO. 24-C	500
WELL NO. 25-A	10
WELL NO. 25-B	200
WELL NO. 25-C	500
WELL NO. 26-C	10,000
WELL NO. 28-A	200
WELL NO. 28-C	2

2. Fourteen (14) of forty-two (42) surrogate recoveries were outside QC limits.
3. One (1) of four (4) blank spike recoveries was outside QC limits.

  
J. Peter Hershey, Ph.D.  
Laboratory Manager  
Lionville Analytical Laboratory

09.16.93  
Date

## GLOSSARY OF BNA DATA

ORIGINAL  
(Red)

### DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.
- X** = Additional qualifiers used as required are explained in the case narrative.
- NQ** = Result qualitatively confirmed but not able to quantify.

### ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP** = Indicates Spiked Compound.

ORIGINAL  
(Red)

Roy F. Wenton, Inc. - Lionville Laboratory

Base/Neutraln by GC/MS

Report Date: 09/13/93 18:47

RFW Batch Number: 930RL525

Client: ALLIED-MOUNDSVILLE

Work Order: 01273031001 Page: 1a

Cust ID: WELL NO. 22-		WELL NO. 22-		WELL NO. 23-		WELL NO. 24-		WELL NO. 24-		WELL NO. 25-	
		A		B		A		A		C	
Sample		RFW#:	001	002	003	004	005	006			
Information		Matrix:	WATER	WATER	WATER	WATER	WATER	WATER			
		D.F.:	2.00	2.00	1.00	50.0	50.0	2.00			
		Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L			
Surrogate Recovery	Nitrobenzene-d5	99	%	107	%	73	%	D	%	D	%
	2-Fluorobiphenyl	65	%	50	%	48	%	D	%	D	%
	Toluene-d8	35	%	25	%	29	%	D	%	D	%
=====f1=====											
1,2-Dichlorobenzene		2600		500		21		5000	U	5000	U
1,3-Dichlorobenzene		86	J	200	U	20	U	5000	U	5000	U
1,4-Dichlorobenzene		720		130	J	14	J	5000	U	5000	U
2,3-Dinitrotoluene		200	U	200	U	20	U	5000	U	5000	U
2,4-Dinitrotoluene		200	"	200	"	20	U	5000	U	5000	U
2,6-Dinitrotoluene		200	"	200	"	20	U	5000	U	5000	U
2-Nitrotoluene		200	"	200	"	20	U	5000	U	5000	U
3-Nitrotoluene		200	U	200	"	20	U	5000	U	5000	U
4-Nitrotoluene		200	U	200	U	20	U	5000	U	5000	U
Nitrobenzene		200	U	200	U	20	U	5000	U	5000	U
Chlorobenzene		3200		2300		23	J	10000	U	10000	U
2,6-Diaminotoluene		200	U	1700		180		10000		33000	
Aniline		200	U	200	U	20	U	54000		72000	

\* = Outside of EPA CLP QC limits.

ORIGINAL  
(Red)

Roy F. Weston, Inc. - Lionville Laboratory

Base/Neutrals by GC/MS

Report Date: 09/13/93 18:47

RFW Batch Number: 9308L525

Client: ALLIED-MOUNDSVILLE

Work Order: 01273031001 Page: 2a

		Cust ID: WELL NO. 25-		WELL NO. 25-		WELL NO. 25-		WELL NO. 26-		WELL NO. 26-		WELL NO. 28-	
		A		B		C		A		C		A	
Sample Information	RFW#:	006 DL		007		008		009		010		011	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	5.00		20.0		50.0		1.00		1000		20.0	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Nitrobenzene-d5	51 %		D %		D %		69 %		D %		58 %	
	2-Fluorobiphenyl	57 %		D %		D %		62 %		D %		67 %	
	Toluene-d8	24 * %		D %		D %		38 %		D %		29 * %	
=====f1=====f1=====f1=====f1=====f1=====f1=====													
1,2-Dichlorobenzene		NA		850 J		5000 U		22		100000 U		42000	
1,3-Dichlorobenzene		NA		2000 U		5000 U		11 U		100000 U		720 J	
1,4-Dichlorobenzene		NA		2000 U		5000 U		5 J		100000 U		5500	
2,3-Dinitrotoluene		NA		2000 U		5000 U		11 U		100000 U		2000 U	
2,4-Dinitrotoluene		NA		2000 U		5000 U		11 U		100000 U		2000 U	
2,6-Dinitrotoluene		NA		2000 U		5000 U		11 U		100000 U		2000 U	
2-Nitrotoluene		NA		2000 U		5000 U		11 U		100000 U		2000 U	
3-Nitrotoluene		NA		2000 U		5000 U		11 U		100000 U		2000 U	
4-Nitrotoluene		NA		2000 U		5000 U		11 U		100000 U		2000 U	
Nitrobenzene		NA		2000 U		75000		8 J		370000		2000 U	
Chlorobenzene		NA		870 J		10000 U		22 U		200000 U		4000 U	
2,6-Diaminotoluene		NA		2000 U		5000 U		19		660000		3000	
Aniline		770		41000		15000		11 U		1800000		9000	

\* = Outside of EPA CLP QC limits.

Work Order: 01273031001 Page: 3a

\*= Outside of EPA CLP QC limits.

**Cust ID: SBLK**

Sample	RFW#: 93LE1438-MB1
Information	Matrix: WATER
	D.F.: 1.00
	Units: ug/L

	Nitrobenzene-d5	82	%
Surrogate	2-Fluorobiphenyl	64	%
Recovery	Toluene-d8	23	%

```
=====f)=====f)=====f)=====f)=====f)=====f)=====f)
```

1,2-Dichlorobenzene	10	U
1,3-Dichlorobenzene	10	U
1,4-Dichlorobenzene	10	U
2,3-Dinitrotoluene	10	U
2,4-Dinitrotoluene	10	U
2,6-Dinitrotoluene	10	U
2-Nitrotoluene	10	U
3-Nitrotoluene	10	U
4-Nitrotoluene	10	U
Nitrobenzene	10	U
Chlorobenzene	20	U
2,6-Diaminotoluene	10	U
Aniline	10	U

\*= Outside of EPA CLP OC limits.

ORIGINAL  
(Ref)Roy F. Weston, Inc. - Lionville Laboratory  
BNA ANALYTICAL DATA PACKAGE FOR  
ALLIED-MOUNDSVILLE

DATE RECEIVED: 08/10/93

RFW LOT # :9308L525

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
WELL NO. 22-A	001	W	93LE1407	08/09/93	08/12/93	08/30/93
WELL NO. 22-B	002	W	93LE1407	08/09/93	08/12/93	08/30/93
WELL NO. 23-A	003	W	93LE1407	08/09/93	08/12/93	08/26/93
WELL NO. 24-A	004	W	93LE1407	08/09/93	08/12/93	09/01/93
WELL NO. 24-C	005	W	93LE1438	08/09/93	08/17/93	09/01/93
WELL NO. 25-A	006	W	93LE1407	08/09/93	08/12/93	08/30/93
WELL NO. 25-A	006	01 W	93LE1407	08/09/93	08/12/93	08/31/93
WELL NO. 25-B	007	W	93LE1407	08/09/93	08/12/93	09/01/93
WELL NO. 25-C	008	W	93LE1407	08/09/93	08/12/93	09/01/93
WELL NO. 26-A	009	W	93LE1407	08/09/93	08/12/93	08/27/93
WELL NO. 26-C	010	W	93LE1407	08/09/93	08/12/93	09/01/93
WELL NO. 28-A	011	W	93LE1407	08/09/93	08/12/93	09/01/93
WELL NO. 28-C	012	W	93LE1407	08/09/93	08/12/93	08/31/93
WELL NO. 29-B	013	W	93LE1407	08/09/93	08/12/93	08/26/93
WELL NO. 29-C	014	W	93LE1407	08/09/93	08/12/93	08/27/93

## LAB QC:

SBLK	MB1	W	93LE1407	N/A	08/12/93	08/26/93
SBLK	MB1 BS	W	93LE1407	N/A	08/12/93	08/26/93
SBLK	MB1 BSD	W	93LE1407	N/A	08/12/93	08/26/93
SBLK	MB1	W	93LE1438	N/A	08/17/93	09/01/93

Page 7 of 8

19.34

11. *Myrica*



ROY F. WESTON, INC.  
LIONVILLE ANALYTICAL LABORATORY  
ANALYTICAL CASE NARRATIVE

ORIGINAL  
(Red)


Client : ALLIED-MOUNDSVILLE  
RFW# : 9308L525

W.O. #: 01273-031-001-9999-00  
Date Received: 08-10-93

INORGANIC

The following is a summary of the quality control results and a description of any problems encountered during the analysis of this batch of samples:

1. All sample holding times as required by 40CFR136 were met.
2. All preparation blank results were below the required detection limits.
3. All calibration verification checks were within the required control limits of 90-110%. Calibration verification is performed using independent standards.
4. Replicate results are summarized on the Inorganic Precision Report contained within this document. All results were within the 20% RPD guidance limit.
5. The analytical methods applied by the laboratory, unless otherwise requested, for all inorganic analyses are derived from the USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020) and Standard Methods for the Examination of Water and Wastewater 16 ed.

  
J. Peter Hershey, Ph.D.  
Laboratory Manager  
Lionville Analytical Laboratory

9.9.93  
Date

ROY F. WESTON, INC.  
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

- U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- \* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

- MB - Method or preparation blank.
- MS - Matrix Spike.
- MSD - Matrix Spike Duplicate.
- REP - Sample Replicate.
- LC - Indicates a method LCS or Blank Spike.
- NC - Not calculable, result below the detection limit.

A suffix of -R or -S following these codes indicates a replicate or spike analysis respectively.

NOTES

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis with the exception of Extractable Organic Halides, which are reported on a wet weight basis.

ORIGINAL  
(Red)

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 09/08/93

CLIENT: ALLIED-MOUNDSVILLE

WESTON BATCH #: 9308L525

WORK ORDER: 01273-031-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	WELL NO. 22-A	Chloride	102	MG/L	50.0	50.0
		pH	6.7	PH UNITS	0.010	1.0
		Specific Conductance	1340	UMHOS/CM	1.0	1.0
-002	WELL NO. 22-B	Chloride	102	MG/L	50.0	50.0
		pH	6.8	PH UNITS	0.010	1.0
		Specific Conductance	1170	UMHOS/CM	1.0	1.0
	WELL NO. 23-A	Chloride	48.2	MG/L	10.0	10.0
		pH	7.6	PH UNITS	0.010	1.0
		Specific Conductance	461	UMHOS/CM	1.0	1.0
-004	WELL NO. 24-A	Chloride	342	MG/L	50.0	50.0
		pH	6.8	PH UNITS	0.010	1.0
		Specific Conductance	2990	UMHOS/CM	1.0	1.0
-005	WELL NO. 24-C	Chloride	422	MG/L	50.0	50.0
		pH	7.0	PH UNITS	0.010	1.0
		Specific Conductance	1670	UMHOS/CM	1.0	1.0
-006	WELL NO. 25-A	Chloride	168	MG/L	50.0	50.0
		pH	9.2	PH UNITS	0.010	1.0
		Specific Conductance	491	UMHOS/CM	1.0	1.0
-007	WELL NO. 25-B	Chloride	542	MG/L	25.0	25.0
		pH	6.5	PH UNITS	0.010	1.0
		Specific Conductance	2130	UMHOS/CM	1.0	1.0
-008	WELL NO. 25-C	Chloride	992	MG/L	100	100
		pH	6.3	PH UNITS	0.010	1.0
		Specific Conductance	3950	UMHOS/CM	1.0	1.0
-009	WELL NO. 26-A	Chloride	413	MG/L	50.0	50.0
		pH	9.1	PH UNITS	0.010	1.0
		Specific Conductance	1570	UMHOS/CM	1.0	1.0
-010	WELL NO. 26-C	Chloride	765	MG/L	100	100
		pH	7.4	PH UNITS	0.010	1.0
		Specific Conductance	2070	UMHOS/CM	1.0	1.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 09/08/93

ORIGINAL  
(Red)

CLIENT: ALLIED-MOUNDSVILLE  
WORK ORDER: 01273-031-001-9999-00

WESTON BATCH #: 93081515

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	WELL NO. 28-A	Chloride	22.1	MG/L	5.0	5.0
		pH	7.5	PH UNITS	0.010	1.0
		Specific Conductance	517	UMHOS/CM	1.0	1.0
-012	WELL NO. 28-C	Chloride	27.8	MG/L	2.0	2.0
		pH	7.0	PH UNITS	0.010	1.0
		Specific Conductance	499	UMHOS/CM	1.0	1.0
013	WELL NO. 29-B	Chloride	145	MG/L	50.0	50.0
		pH	6.4	PH UNITS	0.010	1.0
		Specific Conductance	183	UMHOS/CM	1.0	1.0
-014	WELL NO. 29-C	Chloride	1210	MG/L	50.0	50.0
		pH	5.4	PH UNITS	0.010	1.0
		Specific Conductance	1410	UMHOS/CM	1.0	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 09/08/93

ORIGINAL  
(Red)

CLIENT: ALLIED-MOUNDSVILLE

WESTON BATCH #: 93081525

WORK ORDER: 01273-031-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	93LC1059-MB1	Chloride	1.0	u MG/L	1.0	1.0
BLANK20	93LC1059-MB2	Chloride	1.0	u MG/L	1.0	1.0
BLANK10	93LRP084-MB1	Specific Conductance	1.0	u UMBS/CM	1.0	1.0
BLANK20	93LRP084-MB2	Specific Conductance	1.0	u UMBS/CM	1.0	1.0

ORIGINAL  
(Red)

INORGANIC ACCURACY REPORT 09/08/93

ROY F. WESTON, INC.

WESTON BATCH #: 93081525

WORK ORDER: 012711-031-001-99999-00

CLIENT: ALLIED-MORGANSVILLE

SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	RECOVERY	DILUTION
BLANK10	93LC059-M01	Chloride	9.4	1.0 u	10.0	96.2	1.0
BLANK10	93LC059-M02	Chloride MSO	9.3	1.0 u	10.0	99.5	1.0
BLANK10	93LC059-M03	Chloride	10.4	1.0 u	10.0	104	1.0
BLANK10	93LP084-M01	Specific Conductance	152	1.0 u	147	103	1.0
BLANK10	93LP084-M02	Spec Conductance MSO	151	1.0 u	147	103	1.0
BLANK20	93LP084-M03	Specific Conductance	152	1.0 u	147	103	1.0



ROY F. WESTON INC.

INORGANIC PRECISION REPORT 09/19/91

09/19/91  
(10/1)

CLIENT: ALLIED-MOUNDSVILLE

ANALYST: JACOB #1 01081515

WORK ORDER: 01271-031-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE #1/2	DILUTION FACTOR (REP)
-003REP	WELL NO. 23-A	Chloride	48.1	48.1 1.1	10.0
-009REP	WELL NO. 26-A	pH	8.1	8.1 1.12	1.0
		Specific Conductance	1510	1510 1.15	1.0

ORIGINAL  
11/20/93Roy F. Weston, Inc. - Lionville Laboratory  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
ALLIED-MOUNDSVILLE

DATE RECEIVED: 08/10/93

RFW LOT # :9308L525

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
WELL NO. 22-A						
CHLORIDE	001	W	93LCLO59	08/09/93	09/03/93	09/03/93
PH	001	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	001	W	93LRP084	08/09/93	08/10/93	08/10/93
WELL NO. 22-B						
CHLORIDE	002	W	93LCLO59	08/09/93	09/03/93	09/03/93
PH	002	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	002	W	93LRP084	08/09/93	08/10/93	08/10/93
WELL NO. 23-A						
CHLORIDE	003	W	93LCLO59	08/09/93	09/03/93	09/03/93
CHLORIDE	003 REP	W	93LCLO59	08/09/93	09/03/93	09/03/93
PH	003	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	003	W	93LRP084	08/09/93	08/10/93	08/10/93
WELL NO. 24-A						
CHLORIDE	004	W	93LCLO59	08/09/93	09/03/93	09/03/93
PH	004	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	004	W	93LRP084	08/09/93	08/10/93	08/10/93
WELL NO. 24-C						
CHLORIDE	005	W	93LCLO59	08/09/93	09/03/93	09/03/93
PH	005	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	005	W	93LRP084	08/09/93	08/10/93	08/10/93
WELL NO. 25-A						
CHLORIDE	006	W	93LCLO59	08/09/93	09/03/93	09/03/93
PH	006	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	006	W	93LRP084	08/09/93	08/10/93	08/10/93
WELL NO. 25-B						
CHLORIDE	007	W	93LCLO59	08/09/93	09/03/93	09/03/93

ORIGINAL  
(Red)

Roy F. Weston, Inc. - Lionville Laboratory  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
ALLIED-MOUNDSVILLE

DATE RECEIVED: 08/10/93

RFW LOT # :9308L525

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PH	007	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	007	W	93LRP084	08/09/93	08/10/93	08/10/93

WELL NO. 25-C

CHLORIDE	008	W	93LCL059	08/09/93	09/03/93	09/03/93
PH	008	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	008	W	93LRP084	08/09/93	08/10/93	08/10/93

WELL NO. 26-A

CHLORIDE	009	W	93LCL059	08/09/93	09/03/93	09/03/93
PH	009	W	93LRP039	08/09/93	08/10/93	08/10/93
PH	009 REP	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	009	W	93LRP084	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	009 REP	W	93LRP084	08/09/93	08/10/93	08/10/93

WELL NO. 26-C

CHLORIDE	010	W	93LCL059	08/09/93	09/03/93	09/03/93
PH	010	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	010	W	93LRP084	08/09/93	08/10/93	08/10/93

WELL NO. 28-A

CHLORIDE	011	W	93LCL059	08/09/93	09/03/93	09/03/93
PH	011	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	011	W	93LRP084	08/09/93	08/10/93	08/10/93

WELL NO. 28-C

CHLORIDE	012	W	93LCL059	08/09/93	09/03/93	09/03/93
PH	012	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	012	W	93LRP084	08/09/93	08/10/93	08/10/93

WELL NO. 29-B

CHLORIDE	013	W	93LCL059	08/09/93	09/03/93	09/03/93
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ORIGINAL  
(Red)

Roy F. Weston, Inc. - Lionville Laboratory  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
ALLIED-MOUNDSVILLE

DATE RECEIVED: 08/10/93

RFW LOT # :9308L525

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PH	013	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	013	W	93LRP084	08/09/93	08/10/93	08/10/93

WELL NO. 29-C

CHLORIDE	014	W	93LCL059	08/09/93	09/03/93	09/03/93
PH	014	W	93LRP039	08/09/93	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	014	W	93LRP084	08/09/93	08/10/93	08/10/93

AS QC:

CHLORIDE	MB1	W	93LCL059	N/A	09/03/93	09/03/93
CHLORIDE	MB1 BS	W	93LCL059	N/A	09/03/93	09/03/93
CHLORIDE	MB1 BSD	W	93LCL059	N/A	09/03/93	09/03/93
CHLORIDE	MB2	W	93LCL059	N/A	09/03/93	09/03/93
CHLORIDE	MB2 BS	W	93LCL059	N/A	09/03/93	09/03/93
SPECIFIC CONDUCTANCE	MB1	W	93LRP084	N/A	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	MB1 BS	W	93LRP084	N/A	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	MB1 BSD	W	93LRP084	N/A	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	MB2	W	93LRP084	N/A	08/10/93	08/10/93
SPECIFIC CONDUCTANCE	MB2 BS	W	93LRP084	N/A	08/10/93	08/10/93

93081525

pm-5000  
A-100  
10-10-10  
Yellow  
Custody Trans

RFW 21 21 001/A 791	L372	L373	L375	L377	L378	Flare	Coolers	11 5062
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93086505

## Custody Transfer Record/Lab Work Request

# WESTERN

Page 2 of 2

[illegible]

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

### Special Instructions

### DATE REVISIONS

**WESTON Analytics Use Only**

Samples were	COC Taps was
1) Shipping	1) Present on Culture
Hard Unbroken	Package V. no. 11
Artificial	2) Unbroken on Culture
2) Artificial	Package V. no. 11
3) Placed in a Jar	3) Present on Sample
Condition V. no. 11	V. no. 11
4) Whole Package	4) Unbroken on
Frequently Placed	Sample V. no. 11
V. no. 11	COC Raccoon Food
5) Placed in Water	Upon Sample 11
Thickening Times	V. no. 11

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FLEDEX	M. H. [unclear]	8/10/93			rmh	8/10/93	
W. J. [unclear]	J. E. [unclear]						

Discrepancies between  
Samples Labels and  
COC Number\* V or N  
NOTES



AlliedSignal Inc.

PO BOX 1017  
MARCUS HOOK PA 19061-7017

(Red)

March 10, 1994

Certified RRR P525294649

L. Eli McCoy, Ph.D., Chief  
Office of Water Resources  
Division of Environmental Protection  
State of West Virginia  
1201 Greenbrier Street  
Charleston, WV 25311

Re: AlliedSignal Inc.  
Moundsville WV Facility  
Civil Action No. 81-C-554N  
October 22, 1981

Dear Dr. McCoy:

With reference to Section V, Paragraph (C) of the subject Consent Decree, update studies of water table levels at the Moundsville site were conducted in the second half of 1993.

The levels are obtained by Hanlin Chemicals, WV and AlliedSignal Inc. in conjunction with quarterly permit monitoring requirements. This results in more frequent observation of the water table levels than the semi-annual studies required by the Consent Decree.

Based on these measurements, it appears that groundwater flow has been maintained in an on-site direction and "migration off site of contaminants in the groundwater" has not occurred as that term is defined in paragraph (D).

Please call me at (302) 791-6770 if you have any questions.

Very truly yours.

**L. A. Mattioli, Manager**  
Environmental Quality

MDV4.069

cc: Mark Rudolph, Esq., WVDEP (Enclosed with original)  
Naresh Shah, WVDEP  
John Britvec, WVDEP, Fairmont, WV  
D. P. DeNoon, Hanlin Chemicals, WV

cc: J. E. Cooper, MEY-4  
D. Cooke, AB-3  
M. G. Kaijala, NIC-3  
S. M. Bahn, Olin  
Olin Contr. Admin.



ORIGINAL  
(Red)

ALLIEDSIGNAL INC.  
MOUNDSVILLE WV  
WATER LEVEL ELEVATIONS (FT)  
MEASUREMENTS 08/08/93 and 09/14/93

<u>WELL NO.</u>	<u>WATER LEVEL</u>	<u>WELL NO.</u>	<u>WATER LEVEL</u>
1	671.8	26A	622.8
5	623.0	26C	623.4
6	----	28A	623.1
7	622.3	28C	623.4
9	622.5	33A	-----
10	622.8	33C	623.2
11	623.1	34A	622.9
12	623.5	34C	622.5
14	622.4	38A	622.2
22A	623.4	38B	-----
24A	623.2	38C	622.8
24C	622.0		

RANNEY WELL A	612.2
RANNEY WELL B	622.8
RANNEY WELL C	622.6
RANNEY WELL D	614.0
RIVER LEVEL	624.5

ORIGINAL  
(Red)

ALLIED-SIGNAL INC.  
MOUNDSVILLE WV  
WATER LEVEL ELEVATIONS (FT)  
MEASUREMENTS 11/14/93 and 12/01/93

<u>WELL NO.</u>	<u>WATER LEVEL</u>	<u>WELL NO.</u>	<u>WATER LEVEL</u>
1	670.7	26A	622.3
5	623.7	26C	623.6
6	----	28A	623.3
7	623.1	28C	623.4
9	623.6	33A	-----
10	623.7	33C	625.2
11	624.0	34A	623.7
12	624.2	34C	623.7
14	623.2	38A	623.2
22A	623.4	38B	-----
24A	623.1	38C	624.1
24C	623.2		
	RANNEY WELL A	613.2	
	RANNEY WELL B	623.8	
	RANNEY WELL C	623.6	
	RANNEY WELL D	615.1	
	RIVER LEVEL	625.8	



bcc: J. E. Cooper, MEY-4  
D. Cooke, AB-3  
M. G. Kaijala, NIC-3  
G. M. Bahn, Olin  
Olin Contr. Admin.

ORIGINAL  
(Red)

L. A. MATTIOLI  
ALLIED-SIGNAL INC.  
P. O. BOX 1017  
MARCUS HOOK PA 19061

July 14, 1993

Certified RRR P525294642

L. Eli McCoy, Ph.D., Chief  
Office of Water Resources  
Division of Environmental Protection  
State of West Virginia  
1201 Greenbrier Street  
Charleston, WV 25311

Re: AlliedSignal Inc.  
Moundsville WV Facility  
Civil Action No. 81-C-554N  
October 22, 1981

Dear Dr. McCoy:

With reference to Section V, Paragraph (C) of the subject Consent Decree, update studies of water table levels at the Moundsville site were conducted in the first half of 1993.

The levels are obtained by Hanlin Chemicals, WV and AlliedSignal Inc. in conjunction with quarterly permit monitoring requirements. This results in more frequent observation of the water table levels than the semi-annual studies required by the Consent Decree.

Based on these measurements, it appears that groundwater flow has been maintained in an on-site direction and "migration off site of contaminants in the groundwater" has not occurred as that term is defined in paragraph (D).

As discussed with Naresh Shah by telephone on 4/20/93, AlliedSignal contracted Geraghty & Miller to conduct the "Solute Transport" studies mentioned in our letter to you of 3/24/93. Upon receipt and review of their report, we would be pleased to meet with you to further discuss the Moundsville situation.

Please call me at (302) 791-6770 if you have any questions.

Very truly yours,

L. A. Mattioli, Manager  
Environmental Quality

MDV3.196

cc: Mark Rudolph, Esq., WVDEP (Enclosed with original)  
Naresh Shah, WVDEP  
John Britvec, WVDEP, Fairmont, WV  
D. P. DeNoon, Hanlin Chemicals, WV

ORIGINAL  
(Red)

ALLIEDSIGNAL INC.  
MOUNDSVILLE WV  
WATER LEVEL ELEVATIONS (FT)  
MEASUREMENTS 3/21/93 and 3/22/93

<u>WELL NO.</u>	<u>WATER LEVEL</u>	<u>WELL NO.</u>	<u>WATER LEVEL</u>
1	668.9	26A	625.4
5	623.9	26C	625.3
6	----	28A	624.1
7	621.2	28C	624.5
9	623.5	33A	-----
10	623.9	33C	-----
11	623.6	34A	623.9
12	624.4	34C	624.4
14	623.4	38A	623.8
22A	627.0	38B	-----
24A	624.9	38C	624.7
24C	624.3		
	RANNEY WELL A	615.0	
	RANNEY WELL B	624.2	
	RANNEY WELL C	624.3	
	RANNEY WELL D	614.8	
	RIVER LEVEL	626.5	

ALLIED-SIGNAL INC.  
MOUNDSVILLE WV  
WATER LEVEL ELEVATIONS (FT)  
MEASUREMENTS 5/16/93 and 6/21/93

<u>WELL NO.</u>	<u>WATER LEVEL</u>	<u>WELL NO.</u>	<u>WATER LEVEL</u>
1	671.4	26A	623.4
5	623.3	26C	623.7
6	----	28A	623.0
7	622.5	28C	623.3
9	622.8	33A	-----
10	623.1	33C	623.6
11	623.5	34A	623.5
12	624.3	34C	622.8
14	622.8	38A	622.5
22A	625.1	38B	-----
24A	623.6	38C	623.4
24C	625.2		

RANNEY WELL A	613.0
RANNEY WELL B	623.1
RANNEY WELL C	623.0
RANNEY WELL D	614.4
RIVER LEVEL	624.5

ALLIED CHEMICAL CORPORATION

MEMORANDUM

RECEIVED APR 2 1981

March 26, 1981

ORIGINAL  
(Red)

TO: J. Sarcopski, Moundsville

SUBJECT: Environmental Surveillance Review -  
Moundsville North, March 3-5, 1981

This memo and attachments constitute the report on the environmental surveillance review held at your plant March 3-5, 1981. Details of the Chemicals Company Environmental Surveillance Review Program may be found in Environmental Affairs Bulletin 81-4 dated January 13, 1981.

Review Objective

The objectives of this review were to determine:

1. the level of compliance with federal, state and local regulations and with Corporate, Company or Plant policies;
2. the adequacy of documentation supporting the compliance effort;
3. the control exercised by management over the program.

Disciplines Reviewed

Reviewer

- |                            |                |
|----------------------------|----------------|
| ● Medical Services         | J. A. Hathaway |
| ● Occupational Health      | G. R. Holt     |
| ● Safety & Loss Prevention | J. F. Hayes    |
| ● Pollution Control        |                |
| (Air, Water, & PCB)        | A. J. Labuz    |
| ● Pollution Control        |                |
| (Solid Waste)              | W. F. Potter   |

Findings/Observations

Compliance, documentation, and managerial control were found to be adequate, except for the findings noted in the attachments. A list of observations and recommendations is also included in the attachments.

March 26, 1981

ORIGINAL  
(Red)

"Findings" - are deviations from standards and regulations established by the Corporation, Company or governmental agency with jurisdiction over the plant (e.g., EPA, OSHA).

"Observations" - are descriptive statements concerning plant practices or programs which are in basic compliance with regulatory and Allied Chemical requirements but, which the reviewer feels may be improved by implementation of the recommendations. Observations and recommendations are only advisory.

Plant's Action Plan

The referenced bulletin 81-4 addresses procedures to be followed for follow-up actions.

The team members and I appreciate the cooperation and efforts of both you and your staff in both the preparation and conduct of the review.

  
G. R. Rayer

GRR/jp  
Attachments

cc: With Complete Reports  
T. M. Hellman  
E. J. Shields  
C. D. Smith, SOL-2

With OH Only  
E. J. Freeman  
J. B. Baker, Delaware Valley

With S&LP Only  
C. R. Dancer  
J. F. Hayes, Delaware Valley

With Medical Only  
J. A. Hathaway

With PC Only  
A. J. Labuz, Syracuse  
L. A. Mattioli, Delaware Valley  
W. F. Potter  
R. Sobel

REVIEW RESULTS

Page 1 of 2

LOCATION: Moundsville North

ENVIRONMENTAL AREA: Pollution Control-Air

DATE: March 3-5, 1981

REVIEWER: A. J. Labuz

FINDINGS/OBSERVATIONS

RECOMMENDATIONS/COMMENTS

FINDINGS

1. The following point source emissions are not registered with the WV Dept. of Natural Resources:

- a. caustic scrubber vents associated with the phosgene manufacturing plant. (Source Nos. 53TW-2 and 66TW-1)
- b. nitric fume scrubber vents (used when unloading nitric acid).
- c. TDI residue shed exhaust fan (Source No. 63FW-4).
- d. some tank vents may require registration

2. The sulfuric acid concentrator (SAC) stack emission is above allowable opacity standards (maximum 20%).
3. Plant does not have written authorization for the burning of TDA "lights" as an auxiliary boiler fuel.

1. Register emission sources.  
a.-c.

- 1.d. It is suggested that applicability of regulations to tank vents be reviewed with WVDNR.

2. A notice of violation was issued to the plant on 5/21/80 by WV Air Pollution Control Commission. An appropriation has been approved for installation of a scrubber to abate this emission.
3. Plant does have a permit to burn LCP hydrogen as auxiliary fuel. Plant has verbal authorization from WV for burning TDA "lights" but no confirming memo from the agency.

ORIGINAL  
(Red)

REVIEW RESULTS

Page 2 of 2

LOCATION: Moundsville North

ENVIRONMENTAL AREA: Pollution Control-Air

DATE: March 3-5, 1981

REVIEWER: A. J. Labuz

FINDINGS/OBSERVATIONS

RECOMMENDATIONS/COMMENTS

OBSERVATIONS

1. The Pomalus® stacks (presently idle) should be deregistered upon demolition of the associated building.
2. Stack tests have not been performed on any emission source.

2. It is suggested that some stack testing be performed to verify the accuracy of engineering calculations of stack emissions.

ORIGINAL  
(Rev)

## REVIEW RESULTS

Page 1 of 2

LOCATION: Moundsville North

ENVIRONMENTAL AREA: Pollution Control-Water

DATE: March 3-5, 1981

REVIEWER: A. J. Labuz

### FINDINGS/OBSERVATIONS

### RECOMMENDATIONS/COMMENTS

#### FINDINGS - None

#### OBSERVATIONS

1. Plant outfall analytical data indicate that several parameters are above the WV water quality standards for the Ohio River. They are:  
Outfall 002 - arsenic & phenol  
Outfall 003 - lead cyanide and  
nitrate/nitrite  
Outfall 004 - phenol

2. Diked areas surrounding chemical tanks (e.g., toluene) are not constructed of relatively impervious materials.

3. The flow measuring weir on Outfall 002 and the parshall flumes for Outfalls 004 and 005 are not calibrated regularly.

1. Although there is no indication that the plant is violating any water quality standard in the mainstream of the river, it is suggested that the plant request a defined mixing zone for the outfalls to ensure compliance with the intent of water quality standards. This is especially recommended for phenol in Outfall 003.

In addition, it is suggested that the plant re-analyze Outfall 003 specifically for nitrate to determine if the nitrogen (N) results are nitrates or nitrites.

2. Introduction of chemicals to the ground water aquifer might be possible if a spill were to occur. It is recommended that the permeability of the dike surface be decreased.

3. It is recommended that the culverts upstream of all these measuring devices be cleaned of any obstacles and vegetation for a distance of 100 feet. Calibration of flumes and weirs should be by a device such as a portable mag-flow meter or equivalent.

7/21/80

REVIEW RESULTS

Page 2 of 2

LOCATION: Moundsville North

ENVIRONMENTAL AREA: Pollution Control-Water

DATE: March 3-5, 1981

REVIEWER: A. J. Labuz

FINDINGS/OBSERVATIONS

RECOMMENDATIONS/COMMENTS

4. The SPCC plan is not current.
5. Calibrations and repairs made to portable instruments (e.g., pH meter) used for measurements on registered outfalls should be recorded in a logbook kept for such purpose.
6. Plant does not have written documentation that off-site laboratories are performing outfall analyses by EPA-approved methods.

4. Should be revised to reflect current responsibilities, phone numbers and PCB transformers. In addition, reference to South Plant facilities should be deleted.
6. It is suggested that a general certification be requested from outside labs used for such work.

ORIGINAL  
(Red)

REVIEW RESULTS

Page 1 of 1

LOCATION: Moundsville North

ENVIRONMENTAL AREA: Pollution Control-PCB

DATE: March 3-5, 1981

REVIEWER: A. J. Labuz

FINDINGS/OBSERVATIONS

RECOMMENDATIONS/COMMENTS

FINDINGS - None

OBSERVATIONS

1. Recent analytical results show that transformers (Sub-R & Sub-E) previously thought to be uncontaminated, contain PCB in concentration greater than 500 ppm.
2. All substation transformers are serviced by an outside contractor. There is no evidence that the contractor is licensed to handle PCB oils. That license would be in the form of a "processing and distribution in commerce ban exemption."
3. One PCB-containing transformer (> 500 ppm) is near a plant sewer.

1. Prepare an annual PCB inventory document to reflect this information.
2. Plant should obtain from contractor proof of exemption and retain in files.
3. It is recommended that this transformer be diked.

ORIGINAL  
(Red)

REVIEW RESULTS

Page 1 of 2

LOCATION: Moundsville North

ENVIRONMENTAL AREA: Pollution Control-Solid Waste

DATE: March 3-5, 1981

REVIEWER: W. F. Potter

FINDINGS/OBSERVATIONS

RECOMMENDATIONS/COMMENTS

FINDINGS

1. Waste analysis plan does not include the following required items:

- a. sampling methods used to obtain sample.
- b. frequency of re-analysis.
- c. results of initial analysis.
- d. complete listing of all hazardous wastes not included. o-DCB and chem-fixed sludge are missing.

2. The hazardous waste facility inspection logs do not indicate time of inspections. Many inspections (i.e., for tanks) do not report observations.

3. The waste treatment sludge chem-fixing area (i.e., ponds) were omitted from the RCRA permit application facility plot plan. Pictures of the treatment area were also omitted.

1. Upgrade waste analysis plan.

2. The nature of repairs or remedial action taken should be noted on same log page with initial finding or observation.

3. A revised RCRA permit application should be submitted covering these items.

OBSERVATIONS

1. The TDI residue waste pile should be added to the RCRA permit application ahead of the 5/11/81 amendment deadline because of the Superfund spill reporting requirements.

ORIGINAL  
(Red)

REVIEW RESULTS

Page 2 of 2

LOCATION: Moundsville North

ENVIRONMENTAL AREA: Pollution Control-Solid Waste

DATE: March 3-5, 1981

REVIEWER: W. F. Potter

FINDINGS/OBSERVATIONS

RECOMMENDATIONS/COMMENTS

OBSERVATIONS (Cont'd)

2. All hazardous waste analytical results, safety and emergency equipment inspection schedules, etc. should be maintained in a central file.
3. Warning signs should be posted around equalization and settling ponds.

ORIGINAL  
(Red)

Exhibit G

To The May 27, 1981 Agreement  
Purchase and Sale Between

ORIGINAL  
(Ref)

Allied Corporation & Olin Corporation  
for the Moundsville North Plant

8/4/81

EXHIBIT G

To Agreement of Purchase and Sale Between Allied Corporation  
and Olin Corporation  
Dated as of May 27, 1981

A. The violations, circumstances of non-compliance, citations, claims and complaints, referred to in paragraphs 2.01(f), (h), and (i) of the Agreement, are:

- 1.\* Seller normally discharges approximately 33,000 gallons/day of sanitary waste into the equalization pond of the plant's waste treatment system under existing WRD permit No. IW-5989-78. Seller believes sanitary sewer lines from Building 51 and Building 60 may be broken. The discharge may be considered by the state to be an unpermitted discharge to the groundwater in violation of State Permit No. IW-5989-78.

On June 15, 1981 Seller informed the WRD that these sewer lines may be broken. WRD did not indicate that any action would be taken. Seller was advised in a subsequent telephone conversation with WRD that a permit modification was not necessary to install new lines directing sanitary wastes into the industrial waste sewer system, abandoning the septic tank and broken lines. This was confirmed by letter from Seller to WRD on July 6, 1981. Such new lines should eliminate any leaks. Seller's repair work is in progress.

2. From January 17, 1975 to May 15, 1981, Seller reported a total of 122 excursions from the NPDES permit limits. These were reported in writing to the EPA and WRD as required by the conditions of the permit. A summary table of the excursions and actions taken by enforcement authorities with respect thereto are set forth in Attachment 1.
3. From January 1, 1975 to April 23, 1980, there have been 6 abnormal effluent discharges not specifically covered by permit limits. These discharges were reported to the EPA and/or WRD. A summary of these discharges and actions taken by enforcement authorities with respect thereto are set forth in Attachment 2.

\*Contains information updated after May 27, 1981.

4. The January 1981 NPDES inspection by the EPA showed the USEPA mortality bioassay results to be higher than Allied's contract laboratory bioassay results. The reason for the discrepancy is believed to be fish sensitivity and lag time in performing analysis. We believe that there is no potential for violation of the NPDES permit arising from this inspection. See C.1.
5. The carbon regeneration furnace has been used since May 1977 for regenerating carbon used to treat waste including wastes from toluenediamine, methylene dianiline and dinitrotoluene operations. On April 3, 1979 Seller notified the WVAPCC that the particulate emissions were out of compliance with West Virginia Air Pollution Control Commission Regulation VII. The actual emissions exceeded those indicated in the carbon regeneration furnaces registration (11.5 lbs./hr. v 3.4 lbs./hr.). Seller installed an after burner on the carbon furnace which reduced emissions. Thereafter, emission sampling became impractical. Seller subsequently submitted a letter on April 24, 1980 to the WVAPCC advising of the impracticality of sampling but indicating there were currently no visible emissions (zero opacity). There has been no response from the WVAPCC to the letter. Except for one power failure the after burner has controlled visible emissions to zero opacity since its installation.
6. On April 21, 1977, the WVAPCC issued Seller a Notice of Violation for opacity of the sulfuric acid concentrator stack. Opacity exceeded WVAPCC Regulation VII, Chapter 16, Art. 20, W.Va. Code §3, with a reading greater than that designated as No. 1 on the Ringelmann Smoke Chart for 30 minutes. After meeting and discussing the matter with the agency on June 17, 1977, it was agreed that excessive opacity was caused by mononitrotoluene and dinitrotoluene in the emissions. - This was based on an emissions study by Tradet Laboratories, Inc., under contract to the Seller; a maintenance program to control the opacity problem was implemented but compliance was not achieved 100% of the time. On May 21, 1980, the WVAPCC issued Seller a Notice of Violation for opacity of the SAC stack. Opacity exceeded WVAPCC Regulation VII, Chapter 16, Art. 20, W.Va. Code §3, with opacity in excess of that designated as No. 2 on the Ringelmann Smoke Chart or its equivalent for more than five minutes in any 60 minute period. Subsequent changes in operations reduced the opacity so that it is generally within state limits. Seller is installing a scrubber to assure compliance with opacity standards.

ORIGINAL  
(Red)

- 7.\* Seller was advised by phone on May 20, 1981, that the State of West Virginia is considering action against Allied for unpermitted discharges to groundwater. Seller met with the WV Assistant Attorney General on June 3, 1981 and advised the State that Seller believed it has complied with the appropriate regulations and had given ample notification of groundwater contamination to the State. Seller was advised that the State would review its files and notify Seller if any action was forthcoming.

On July 9, 1981, the State of West Virginia informed Seller that the possible action could be based upon either permit violations or the presence of pollution in the groundwater.

It is possible that in resolution of this potential enforcement action an order would be issued with the following requirements:

- a) Monetary penalty.
  - b) Continued pumping of Ranney Well E.
  - c) A contingency plan in the event of failure of Ranney Well E.
  - d) A groundwater monitoring program probably using existing wells.
  - e) Remedial action possibly including capping of areas such as buried salts (B4), aniline area (B6), and other areas.
- 8.\* Potential air action by USEPA/State of Pennsylvania - Emissions at the North plant. See Exhibit F, Schedule F, Potential Claims (3) for description.

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B. The disclosure of wastes deposited on the real property, referred to in paragraph 2.01(f) and (i) of the Agreement, is as follows:

1. Pond 17 (Active) "NPDES Equalization Pond" - This is an EPDM rubber lined holding basin in operation since July 1977 that is utilized to collect and equalize the North Plant process waste water prior to neutralization. Location-Pond 17 on Attachment 3. The effluent from this pond is pumped to the inorganic waste treatment plant for pH adjustment using lime or caustic. During the start-up of the NPDES water treatment facilities in 1977, a major leak was discovered at the inlet sewer line to the pond. After completion of substantial repairs, a small amount of leakage of undetermined origin was still detectable in the pond's underdrain sump. However, since the pond is constructed with a compacted clay base beneath the synthetic liner, it is not probable that material would get into groundwaters. The liner was replaced in May 1981. The volume of this pond is approximately 2 million gallons.
2. Pond 18 (Active) "NPDES Settling Pond" - This EPDM rubber lined pond in operation since July 1977 is utilized to settle and equalize neutralized process waste water after it is pumped through the inorganic waste treatment plant. Location-Pond 18 in Attachment 3. The inlet pH is normally maintained at 8+ to enhance settling of metallic hydroxides. The volume of this pond is approximately 2 million gallons. The effluent from this pond overflows to the Outfall 003 discharge line to the Ohio River.
3. Buried Salts - Approximately 30,000 pounds of sodium and potassium nitrate/nitrite from an old maleic acid anhydride converter is buried in bulk in an area between Building 41 and the boiler house. Location-Buried Salts in Attachment 3.
4. Mercury - Hydrogen is received from the Moundville South Plant via pipeline. Trace amounts of mercury in the hydrogen are removed by means of carbon adsorption and molecular sieve units and the area around these units may be contaminated with minor amounts of mercury. Location-Mercury Removal Unit in Attachment 3.
5. Aniline Area - The ground in the area, approximately 50,000 square feet, formerly used to manufacture aniline, would be expected to be contaminated with nitrobenzenes, aniline, benzene and minor amounts of mercury. These were used in the manufacture of aniline. Location-area formerly used to manufacture aniline in Attachment 3.

6. Dinitrotoluene Drums - Approximately 500 dinitrotoluene (DNT) drums located in a 5000 square feet area North of Building 46 were melted and returned to process. Until April 1980, the DNT drums were stored in a 16,000 square feet area on "Koopman's Mountain." Location-Former DNT Barrel Storage in Attachment 3. The earth under the Building 46 DNT drum storage area and Koopman's Mountain may be contaminated with DNT.
7. Buried DNT Contaminated Soil - Approximately 12,000 cubic feet of DNT contaminated soil is buried in a polyethylene lined pit near the TDI residue pile. It is believed that the material will be on Seller's property. However, a small portion may be on Olin property depending upon final property lines.
8. DCB/CCl<sub>4</sub> Waste Stream - There is a backlog of approximately 10,000 gallons of this DCB/CCl<sub>4</sub> waste stream stored in tanks. Approximately 5000 square feet of earthen floor within a diked area may be contaminated with monochlorobenzene from previous operations and with DCB and CCl<sub>4</sub>. Location-DCB/CCl<sub>4</sub> Storage Tanks in Attachment 3. The material has been sent off-site in the past for recovery of the DCB.
9. Aniline Burn Area - For approximately one month, aniline residue was burned in a 150 square feet open pit north of Ranney Well "E." The area may be contaminated with aniline and/or residue decomposition products. Location-Aniline Residue Burning Pits in Attachment 3.
10. Monochlorobenzene - An area of approximately 3400 square feet near Building 63 may be contaminated with monochlorobenzene due to previous storage and handling of this material for the manufacture of TDI.
11. Other Residues and Locations - The groundwater at the site is contaminated with organic and inorganic compounds due to past handling and disposal practices, spills, leaks, faulty ponds, and the like. For similar reasons, there may be sections of ground contaminated by materials handled at the plant.

In addition to the above-mentioned materials on Seller's premises, tanks, sewers, lines, sumps, equipment, transport and other facilities may contain chemical residues.

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(Red)

C. Material communications, correspondence, submissions to government agencies and other items related to the environmental status of the Plant and Plant Site, and environmental matters resulting from activities associated with the Plant and the Plant Site referred to in paragraph 2.01(h) and (i) of the Agreement, are:

1. As a result of a meeting with EPA on September 28, 1978, Seller submitted on October 27, 1978 a course of action in regard to the results of bioassay tests run by the EPA on outfall 003.

On August 20, 1979 Seller submitted to the EPA the results of a program to determine the effects of known constituents of outfall 003 on the results of static bioassay tests.

On November 30, 1979 Seller received a Section 308 request from the EPA concerning the results of bioassay tests. The response was submitted to the EPA on January 30, 1980.

On March 12, 1980 Seller received a letter from the EPA stating that the results of the bioassay tests do not presently warrant a toxicity reduction plan, especially in light of the fact that BAT guidelines are about to be promulgated. Also, the EPA requested notification of completion of the projects instituted to reduce toxicity at outfall 003. On July 17, 1980 Seller notified the EPA that a portion of the project was completed and the rest under evaluation.

On March 28, 1980 Seller notified the EPA by letter of incorrect references in their letter of March 12, 1980.

2. On September 24, 1980 Seller received standard samples from USEPA for analysis of certain parameters to check the plant's analytical methods. Seller transmitted results of its analyses to USEPA on October 22, 1980 and was advised by USEPA on April 13, 1981 that mercury, pH and nitrate nitrogen reported values were not within acceptable analytical limits. Seller advised USEPA on May 18, 1981 that the pH value was due to decimal error and that nitrogen and mercury levels would be rechecked. Seller's studies show no further problems with nitrogen values. However, mercury values, received from an outside laboratory, are still in error. USEPA will be advised that Seller will utilize another contract laboratory for mercury analysis.
3. Seller notified the EPA by letter of April 21, 1976 of its intent to burn waste hydrogen in SG-1. Seller also advised EPA that the hydrogen was treated to remove mercury.

ORIGINAL  
(Red)

4. Seller contact the WVAPCC (by telephone) on February 22, 1980 and obtained permission to burn waste toluene diamines (TDA) in steam boiler SG-3. By letter of March 6, 1980 to the WVAPCC, Seller confirmed the telephone report of February 22, 1980.
5. Registration Data of Manufacturing Process Source Operations Which Emit Hydrocarbons and/or Nitrogen Oxides was submitted to WVAPCC July 20, 1977.
6. Registration data for incinerators and particulate/sulfur dioxide sources were submitted to WVAPCC July 5, 1978. On April 23, 1981 Seller met with WVAPCC to discuss updating registration of emission sources. The agency advised that Seller should wait until new forms are issued. Seller was also advised by WVAPCC that there are no air operating permits for emission sources and that Buyer would have to resubmit registrations in Buyer's name.
7. On March 26, 1981 the WVAPCC advised Seller by phone that a construction permit to install a scrubber on the sulfuric acid concentrator unit to reduce emissions was not required. This was confirmed in writing to WVAPCC on April 24, 1981.
8. Seller has participated in various surveys conducted by EPA. These include response to a November 1, 1973 EPA request for information on plant emissions of sulfur oxides and particulates and a 1978 Hydrosience study on Emission Control Options for the Synthetic Organic Chemicals Manufacturing Industry. A report for Seller's TDI process was subsequently issued. In 1979 a similar report was issued on the TDI industry. A response was submitted to EPA's April 27, 1979 request for information on emissions from the SAC.
9. On April 4, 1980, Inside EPA reported on an EPA contractor Systems Application, Inc. (SAI) report assessing emissions from 35 possible airborne carcinogens. It lists Seller's Moundsville location as number five in the country in terms of dosage to the potentially exposed population. Seller found that the o-dichlorobenzene (o-DCB) dosage was incorrectly determined. USEPA published the report for public comment but did not correct for Seller's comments. Seller submitted comments to USEPA on June 16, 1980.

10. WVAPCC advised Seller on April 28, 1981 that a permit was not required for the installation of a new ventilation system in the DNT process building.
11. In response to a request from the United States House of Representatives, Committee on Interstate Commerce, Subcommittee on Oversight and Investigations, on June 29, 1979 Seller forwarded to Congressman Eckhardt, the subcommittee chairman, completed survey questionnaires concerning solid waste disposal practices.
12. On March 8, 1977 Seller submitted to West Virginia Department of Health a completed Hazardous Waste Survey form as requested.
13. On October 12, 1978 Seller submitted to the WVDNR a list of impoundments, ponds and lagoons at the North Plant.
14. By letter dated January 23, 1981, USEPA requested information on solid wastes produced in the manufacture of TDI. Seller responded to USEPA's request on March 6, 1981.
15. In November, 1977, Seller hired Geraghty & Miller, Inc. to perform a hydrogeological study of the North Plant. The North Plant report was submitted to Seller in May, 1978, and includes recommendations relating to the South Plant. The federal and state agencies have been made aware of the groundwater contamination situation through the NPDES and WRD permit applications. Also, well water quality data are submitted to the WRD as an integral part of the monthly monitoring report.

The Geraghty & Miller Study concluded that the trash dump west of Ranney Well E is apparently the source for most of the organic contaminants arriving at Ranney Collector E, while most of the inorganic pollutants appear to originate in the NAD pond and TDI residue pile areas. Geraghty & Miller further concluded that contaminated groundwater is not migrating off the plant property and that neighboring wells and the Ohio River do not appear to be in danger of becoming polluted as long as Ranney Well E is pumped at an appropriate rate.

In the past, it has been necessary for Seller on occasion to pump out a separate organic phase which accumulated in the bottom of Ranney Well E. This, however, has not been required since July 27, 1978, indicating a reduction in separable organics.

Geraghty & Miller recommended abandonment and impermeable covering of unlined facilities as soon as practicable. They further recommended continued

pumping of the Ranney Collectors, a water quality and water level monitoring program and flood protection for waste disposal facilities. Seller submitted the Geraghty & Miller reports for the North and South Plants to the West Virginia Division of Water Resources on March 28, 1980. See A.8.

16. On August 1, 1980 Seller submitted Notification of Hazardous Waste Activity to USEPA as required by RCRA.
17. On November 4, 1980 Seller submitted RCRA Permit Application Part A, Forms 1 and 3 to USEPA.

18. On January 16, 1981, Seller submitted a subsequent Notification of Hazardous Waste Activity to USEPA to include TDI residue as required by RCRA.
19. On May 6, 1981 Seller submitted an amended Part A application to USEPA to include TDI residue.
- 20.\* Seller operated under West Virginia State Water Commission Industrial Permit Numbers 53, 1061, 3060, 3205, 4249, 5726 from July 8, 1955 until June 15, 1978. Seller is presently operating under Permit No. IW-5989-78 issued May 17, 1978. Permit expires January 17, 1980. The Reissuance Application (No. IR-88) was submitted to WRD on September 18, 1979. On January 26, 1981 the WRD advised the Seller that Reissuance Application No. IR-88 was complete and that a public notice relating to the application had been issued.

By letters dated August 18, 1980, October 6, 1980, April 23, 1981, April 29, 1981 and May 29, 1981, WRD extended the existing permit to October 31, 1980, April 1, 1980, May 1, 1981, June 1, 1981, and July 17, 1981. On February 19, 1981 Seller sent to the WRD an amendment to the State Water Control Permit No. IW-5989-78 and Reissuance Application IR-88 concerning the shared monitoring of outfall 002 with LCP-West Virginia, Inc. By letter dated May 29, 1981, WVDNR requested various information on pond No. 16 discharges to outfall 004. Seller submitted response to WRD on June 12, 1981.

21. Seller submitted an application to renew NPDES Permit No. WV0004413 on July 6, 1979. Seller's NPDES Permit No. WV0004413 expired January 1980. The EPA issued a letter dated January 17, 1980 advising Seller that, pending issuance of a new permit, the existing permit will continue. On March 18, 1981, Seller submitted an NPDES application on the consolidated forms 1 and 2C, to EPA. Issuance of the permit is pending before Region III.
22. Seller's SPCC Plan was revised in January 1980, to conform with the sequence outlined in the "Guidelines for the Preparation of An SPCC Plan" (USEPA regulation 40 CFR 112.7). The Plan reflects both the Seller's North and former South Plants.
23. On June 14, 1977, EPA held a meeting with Seller in Philadelphia concerning CCl<sub>4</sub> discharges. As a result of that meeting, Seller submitted to the EPA on June 23, 1977 a plan and estimated schedule as to prevention and/or control of the CCl<sub>4</sub> spills. In furtherance of this program, Seller has instituted administrative controls. These sources have not contributed to any abnormal discharges or NPDES permit excursions since November 1977.

24. EPA and WVAPCC conducted inspections of the plant's emission permits in April 1976, July 1977 and August 1980. No apparent air pollution control problems were observed as a result of the inspections.
25. The Seller's electric transformers were sampled for PCB content on December 1, 1980. Results indicate two transformers, units 7 and 8, contain over 500 ppm of PCB's.

The units are labeled in accordance with existing PCB regulations. Also, PCB was used in the phosgene manufacturing unit, Building 66, until September 1973 when it was removed from the equipment. The used material was burned in the plant incinerator. Analysis of water from the North Plant Ranney Well "E" and plant outfalls for the NPDES Permit Application submitted in July 1979 revealed no detectable PCB's.

- 26.\* On June 8, 1981, Seller submitted Superfund Section 103(c) site notification to USEPA III.
27. Since 1974, Seller has experienced seven air incidents which were reported to the WVAPCC. These incidents included nitric acid tank car leaks, a TDA emission due to a rupture disc failure, phosgene releases, a refuse fire, and a TDI vapor release. No state action resulted from these incidents.
28. Routine inspections of outfalls and wastewater treatment facilities are conducted monthly by a WRD inspector. The inspection reports are on file and available at the plant. The inspections generally cover visual inspection of outfalls and a cursory review of plant records. There are no outstanding actions.

EPA compliance monitoring inspections in July 1976, March 1978, May 1979, and January 1981 generally showed the plant to be satisfactorily complying with the permit's recording and reporting procedure, facility operation and maintenance, sampling procedures, laboratory practices, flow measurements and effluent requirements.

ORIGINAL  
BR-115

MOUNDSVILLE NORTH PLANT  
OCCUPATIONAL HEALTH DISCLOSURES

Exposure Summaries

Summarized below are exposure potentials and other information for some chemicals used at Moundsville in TDI and MDA production.

Chemicals Peculiar to TDI Production

36. Toluene Diisocyanate (TDI)

Personnel exposures to TDI at the plant have been documented since at least 1973. They typically show <.005 ppm in workroom air well below the OSHA allowable ceiling of 0.02 ppm and also below the NIOSH recommended TWA of 0.005 ppm (1973).

During the year 1979, the plant TDI process operated with 95 percent confidence level at 0.005 ppm or less. Excursions above the allowable standard, although infrequent, currently occur as a result of mechanical equipment failure such as pump seal leaks, accidental spills, and other unusual conditions. When these excursions occur, employees use respiratory protection to prevent overexposure.

\*  
37. Toluenediamine (TDA)

Monitoring for TDA airborne concentrations has been ongoing since 1976. Currently, there is no OSHA standard for TDA.

Aware of toxicology information, Allied formed a committee (Plant, Division, and Corporate groups) which set an internal exposure guideline of 0.1 ppm or .5 mg/m<sup>3</sup>.

The plant has advised potentially exposed employees of current toxicology information and of the results of employee monitoring.

On June 4-5, 1981, NIOSH conducted a Health Hazard Evaluation at Moundsville to study possible male reproductive effects of TDA and/or DNT. NIOSH's overall impression based on interview questionnaires suggested no excess miscarriages or other defects. A finished report, promised for early July 1981, will formalize conclusions.

A reproductive study was conducted at the plant the week of April 27, 1981 by the Chemical Industry Institute of Toxicology. Results are expected in the near future.

ORIGINAL  
(Red)

38. Dinitrotoluene (DNT)

Personnel samples have been taken at the plant to determine exposure levels to DNT. These levels are usually well below the OSHA TLV of 1.5 mg/m<sup>3</sup>, but are occasionally above Seller's internal guideline of 1.0 mg/m<sup>3</sup>.

39. Methylene Dianiline (MDA)

The plant produces MDA and has an industrial hygiene and a medical program to protect employees' health. Since beginning MDA production, there have not been any MDA health related problems at the Plant.

However, there have been documented cases of toxic effects on the liver from excessive exposure to MDA reported in the literature. As a result, Allied has revised its product literature and internal handling procedures.

40. Phosgene

The Plant produces phosgene as an intermediate for the TDI process. The current OSHA TLV for phosgene is 0.1 ppm. Both personal and continuous monitors, placed throughout the phosgene area, are used to ensure that employee exposure is within standard requirements. The MDA Scientific area monitors alert employees with an audible alarm in the control room should airborne phosgene levels exceed predetermined safe levels.

Since the Plant began producing phosgene in 1954 there has been one phosgene related fatality which occurred in 1978 due to an accidental release of phosgene. The incident was investigated by OSHA and is covered in the Safety and Loss Prevention disclosure. In addition to this fatality, there was one other serious phosgene exposure in which an employee developed lung edema and required follow-up medical treatment.

ORIGINAL  
(R-10)

## Other Materials

### 41. Formaldehyde

Short term detection tube samples recently showed non-detectable levels throughout the MDA Production area. More recently, a long term sample was taken in the MDA Building where formaldehyde is charged to the reactor. The result was well below the OSHA Standard. In addition long term samples were taken around the TDA treat tank at Pond #13 (settling), and at the TDA water storage tank in the environmental area. All were non-detectable except one (10 ppm) near the TDA treat tank. It was due to a feed line leak from the formaldehyde storage tank which has been repaired.

Trace amounts of formaldehyde were produced in the Pomalus operation which was shut down in 1979. Grab samples from 1/28/65-3/21/66 showed non-detectable levels for the most part with occasional peak levels around process tanks of up to 40 ppm.

### 42. Asbestos

The Plant has a long standing policy of not using asbestos unless absolutely necessary. The only exceptions now are the use of treated gasket material, which presents little or no hazards, and some transite pipe for the fire water systems.

Some older insulation may contain asbestos and the Plant has a special procedure which is used whenever that material must be removed.

## Other OH Program Aspects

### 43. Respiratory Protection

The Plant has a comprehensive respiratory protection program that includes quantitative fit testing.

### 44. IH Protective Clothing

Protective clothing is provided to all hourly employees by agreement and to supervisors on an as needed basis. Separate lockers and in plant laundry service are also provided. Shower facilities outside of operating areas are provided to reduce chemical exposure potential.

ORIGINAL  
(Red)

45. Noise

In light of an 85 dBA/8 hour "action level" in OSHA's new Noise Amendment, the plant staff has updated noise level and exposure data. It suggests that significant noise exposure situations do not regularly occur though there are areas in the plant which regularly exceed 85 dBA.

46. On March 2, 1981 a Bill was introduced in the House of the W.Va. Legislature. This Bill, H.B. #1323 incorporates "establishment by the commissioner of labor of a list of hazardous chemicals substances to which employees of this state may be exposed." It also covers monitoring and posting of results under certain circumstances. It appears likely that the commissioner's list would include the OSHA 1910.1000 air contaminants list. It has been signed into law to be effective to July 1, 1981. Directives for its implementation must be written by the labor department. This may take at least 6 months.

SAFETY & LOSS PREVENTION DISCLOSURE

MOUNDSVILLE NORTH PLANT

ORIGINAL  
(R-1)

47. OSHA Inspections

The facility was last inspected by OSHA on January 12, 1977 following an employee fatality as a result of exposure to phosgene. The inspection resulted in the plant being cited for six violations relating to the respiratory protection program. A sum of Twenty Three Thousand Dollars in penalties was paid.

48. Automobile Overspray

During the period 1975 to present, approximately Ninety One Thousand Dollars were paid to settle overspray damage claims. Details of incidents and corrective actions taken are available at the plant site. There are no outstanding claims.

49. Fires and Explosions

The last fire incident causing over Fifty Thousand Dollars damage, or more than one day's production loss occurred on February 10, 1975 when the TDI plant solvent stripper caught fire. This incident resulted in damage to column trays and thirty days lost production. Corrective actions have been taken.

50. Power Outage

Since 1975, there has been only one total power failure that resulted in a production loss at the North Plant. This occurred on March 21, 1980 when a differential trip circuit on the North Plant main substation faulted, resulting in a loss of approximately five hours production.

Following the incident, Faulty transformer wiring was replaced and the transformer controls were cleaned and silicone treated to prevent faults.

51. Workmen's Compensation

This Workmen's Compensation claim cost information was taken from the latest data available as of April 15, 1981 and covers the time period July 1, 1974 to July 1, 1980.

Total costs incurred during that period in handling still open cases are shown below:

Medical	\$132,882
Indemnity	\$279,679
Expense	\$ 2,423
Total	<u>\$414,984</u>

Reserve - \$552,447

During the period July 1, 1974 to July 1, 1980, data available as of April 15, 1981 shows a total of fifty six claims closed at the total cost of eleven thousand five hundred thirty seven dollars.

ORIGINAL  
(Red)

ORIGINAL  
(Red)

PRODUCT SAFETY DISCLOSURE

52. Of the chemical products manufactured at Moundsville, Methylene Dianiline (MDA) is the only chemical known to be produced and sold in the U.S.A. solely by Allied Chemical. The other chemicals used on site should be familiar to Olin based on their experience in the manufacture of toluene diisocyanate. Therefore, the following summary and the referenced information on MDA are submitted as the Product Safety Disclosures.

Methylene Dianiline (MDA)

There is no published TLV (1980) for MDA. However, an Airborne Exposure guideline of 0.1 ppm was proposed to ACGIH. MDA is a toxic chemical and can produce marked, severe effects on the liver. It is mildly irritating to skin and eyes, but can be readily absorbed through the skin to produce the above toxic response. MDA has been reported to be tumorigenic at relatively high dosages in laboratory animals but the data available are not adequate to reach a firm conclusion. No instances of cancer related to MDA have been reported in man despite extensive human experience, although there have been reports of liver toxicity in man overexposed to MDA.

53. As required, the chemicals manufactured at Moundsville were submitted to EPA under TSCA for inclusion in the inventory. This information is included in EPA's Toxic Substances Control Act Chemical Inventory - Initial Inventory (May 1979).

NONE OF MATTERS SET FORTH HEREIN IN ANY WAY AFFECT THE SCOPE OR EXTENT OF INDEMNIFICATIONS CONTAINED ELSEWHERE IN THE AGREEMENT.

ATTACHMENT 1

## Moundsville North Works pH Excursion Chronology

NPDES Permit Effective Date: January 17, 1975

Note: From 1/17/75 to 9/30/75 pH measured on Outfalls 001, 002, and 003 via 24-hour composite sample.

pH Excursion Report No.	Report Date	Excursion Date	Outfall Involved	Length of Excursion	Measured pH	Permitted pH	Outfall Flow	Cause of Excursion
1	1/23/75	1/18/75	001	24 hours	12.3	1.0-12.0		Not known.
		1/19/75	001	24 hours	12.9	1.0-12.0		Not known.
		1/18/75	002	24 hours	0.7	1.0-12.0		Washing of sulfuric acid storage.
		1/19/75	002	24 hours	12.3	1.0-12.0		Overneutralization of low pH.
2	2/3/75	1/27/75	001	24 hours	12.3	1.0-12.0		Not known.
		1/29/75	002	24 hours	0.7	1.0-12.0		Leak in sulfuric acid pipe.
3	2/5/75	1/30/75	003	24 hours	12.1	1.0-12.0		Overneutralization.
		2/1/75	003	24 hours	12.3	1.0-12.0		Overneutralization.
4	2/10/75	2/4/75	001	24 hours	12.5	1.0-12.0		Not known.
		2/3/75	003	24 hours	12.0	1.0-12.0		Overneutralization.
		2/4/75	003	24 hours	12.7	1.0-12.0		Overneutralization.
		2/5/75	003	24 hours	12.2	1.0-12.0		Overneutralization.
5	2/14/75	2/9/75	002	24 hours	0.9	1.0-12.0		Sulfuric acid pump leak
6	2/19/75	2/13/75	003	24 hours	12.8	1.0-12.0		Overneutralization.
		2/14/75	003	24 hours	12.6	1.0-12.0		Overneutralization.
7	3/7/75	3/3/75	001	24 hours	12.1	1.0-12.0		Not known.
		3/5/75	001	24 hours	12.6	1.0-12.0		Not known.
		3/2/75	003	24 hours	0.1	1.0-12.0		Underneutralization.
		3/3/75	003	24 hours	0.1	1.0-12.0		Underneutralization.
		3/4/75	003	24 hours	0.7	1.0-12.0		Underneutralization.
8	3/14/75	3/7/75	003	24 hours	0.6	1.0-12.0		Underneutralization.
		3/8/75	003	24 hours	0.5	1.0-12.0		Underneutralization.
		3/9/75	003	24 hours	0.5	1.0-12.0		Underneutralization.
		3/11/75	003	24 hours	0.9	1.0-12.0		Underneutralization.
		3/12/75	003	24 hours	0.8	1.0-12.0		Underneutralization.

ATTACHMENT 11

ORIGINAL  
(300)

Moundsville North Works - pH Excursion Chronology

Page 2

NPDES Permit Effective Date: January 17, 1975

Note: From 1/17/75 to 9/30/75 pH measured on Outfalls 001, 002, and 003 via 24-hour composite sample.

<u>pH Excursion Report No.</u>	<u>Report Date</u>	<u>Excursion Date</u>	<u>Outfall Involved</u>	<u>Length of Excursion</u>	<u>Measured pH</u>	<u>Permitted pH</u>	<u>Outfall Flow</u>	<u>Cause of Excursion</u>
9	3/20/75	3/15/75	001	24 hours	12.1	1.0-12.0		Not known.
		3/13/75	003	24 hours	0.8	1.0-12.0		Underneutralization.
		3/17/75	003	24 hours	0.7	1.0-12.0		Underneutralization.
		3/18/75	003	24 hours	0.6	1.0-12.0		Underneutralization.
		3/19/75	003	24 hours	0.9	1.0-12.0		Underneutralization.
10	4/2/75	3/28/75	003	24 hours	12.1	1.0-12.0		Overneutralization.
		3/29/75	003	24 hours	12.4	1.0-12.0		Overneutralization.
		3/31/75	003	24 hours	12.5	1.0-12.0		Overneutralization.
		4/1/75	003	24 hours	12.2	1.0-12.0		Overneutralization.
11	4/23/75	4/17/75	003	24 hours	12.3	1.0-12.0		Overneutralization.
		4/18/75	003	24 hours	12.1	1.0-12.0		Overneutralization.
		4/19/75	003	24 hours	12.3	1.0-12.0		Overneutralization.
		4/22/75	003	24 hours	12.2	1.0-12.0		Overneutralization.
<u>Note:</u> From 10/1/75 to 9/1/76 pH measured by: Outfall 001 - 3 daily grab samples + (optional) 24-hr. comp. Outfall 002 - 3 daily grab samples + (optional) 24-hr. comp. Outfall 003 - Continuous recorder.								
12	10/7/75	10/3/75	001	1 hour (est.)	12.6	1.0-12.0		Ion-exchange regeneration
13	11/25/75	11/20/75	003	15 min.	12.3	1.0-12.0		Ion-exchange regeneration
14	12/5/75	11/29/75	002	8 hour (est.)	0.5	1.0-12.0		Sewer pluggage.
15	12/12/75	12/10/75	002	Unknown 24-hr. comp.	0.4*		10 GPM	SAC valve failure.
16	12/31/75	12/24/75	001	1 hour (est.)	12.25	1.0-12.0		Not known.
		12/25/75	002	4 hours (est.)	0.25	1.0-12.0		Not known.
17	2/3/76	1/28/76	001	8 hours (est.)	12.2	1.0-12.0		Alkaline process waste batch discharge.
		1/29/76	001	8 hours (est.)	12.1	1.0-12.0		Alkaline process waste batch discharge.
18	2/3/76	1/31/76	003	30 min.	0.8	1.0-12.0		Interruption to lime supply

# Moundsville North Works - pH Excursion Chronology

Page 3

NPDES Permit Effective Date: January 17, 1975

Note: From 1/17/75 to 9/30/75 pH measured on Outfalls 001, 002, and 003 via 24-hour composite sample.

pH Excursion Report No.	Report Date	Excursion Date	Outfall Involved	Length of Excursion	Measured pH	Permitted pH	Outfall Flow	Cause of Excursion
19	2/9/76	2/3/76	003	30 min.	0.7	1.0-12.0		
20	2/13/76	1/18/76 1/24/76 1/27/76	001 001	8 hour (comp.) 8 hour (comp.) 16 hour (comp.) 16 hour (comp.) 24 hour (comp.)	12.1* 12.1* 12.7* 12.6* 12.7*	1.0-12.0 1.0-12.0 1.0-12.0 1.0-12.0 1.0-12.0		HCl rupture disc failure
		1/29/76**	001	8 hour (comp.)	12.1*	1.0-12.0		Batch-type alkaline waste discharges. Grab samples were OK on 3 of the 4 days. On 1/29/76 1 grab sample was high and was previously reported.
21	2/13/76	2/6/76 2/7/76	003 003	20 min. 15 min.	0.8 0.8	1.0-12.0 1.0-12.0		Sewer pluggage during HCl regeneration of ion-exchange column.
22	3/4/76	2/28/76	003	5 min.	0.9	1.0-12.0		Not known.
23	3/11/76	3/7/76 3/8/76	003 003	5 min. 30 min.	12.1 12.2	1.0-12.0 1.0-12.0		Batch-type alkaline waste discharge. Batch-type alkaline waste discharge.
24	3/15/76	3/10/76	001	15 min. (est.)	0.1	1.0-12.0		Sewer cross-connection.
25	3/16/76	3/10/76 3/11/76	003 003	35 min. 10 min.	12.2 12.2	1.0-12.0 1.0-12.0		Ion-exchange system regeneration. Ion-exchange system regeneration.
				15 min.	12.3	1.0-12.0		
26	4/15/76	4/12/76	003	5 min.	12.1	1.0-12.0		Ion-exchange system regeneration.

Notes: \*Optional additional monitoring.  
\*\*Same day as previous. In response to grab sample excursion.

Moundsville North Works - pH Excursion Chronology

NPDES Permit Effective Date: January 17, 1975

Note: From 1/17/75 to 9/30/75 pH measured on Outfalls 001, 002, and 003 via 24-hour composite sample.

<u>pH Excursion Report No.</u>	<u>Report Date</u>	<u>Excursion Date</u>	<u>Outfall Involved</u>	<u>Length of Excursion</u>	<u>Measured pH</u>	<u>Permitted pH</u>	<u>Outfall Flow</u>	<u>Cause of Excursion</u>
27	5/26/76	5/21/76	001	29 min.	12.3	1.0-12.0		Batch discharge of alkaline process wastes. Batch discharge of alkaline process wastes.
		5/24/76	001	39 min.	12.2	1.0-12.0		
28	6/28/76	6/20/76	002	16 hours(est.)	0.7 + 0.8	1.0-12.0		Process upset. Process upset.
		6.22.76	001	8 hours(est.)	12.1	1.0-12.0		
29	7/15/76	7/10/76	003	7 min.	0.9	1.0-12.0		Line slurry pump pluggage Excess neutralizing agent used
		7/11/76	003	10 min.	14.0	1.0-12.0		
30	7/30/76	7/23/76	002	16 hours(est.)	0.1 + 0.3	1.0-12.0		Sulfuric acid line leak.
<p>Note: On September 2, 1976, the pH limits for all 3 outfalls became 3.0-10.0 and Outfalls 001 &amp; 002 sampling was reduced to one grab/day. 003 continued to be sampled and recorded continuously. On September 1, 1976, Outfall 001 flow was diverted to Outfall 003.</p>								
31	9/13/76	9/7/76	003	195 min.	2.0	3.0-10.0		Neutralization problems. Neutralization problems.
		9/8/76	003	70 min.	2.0	3.0-10.0		
32	9/16/76	9/10/76	003	35 min.	2.6	3.0-10.0		Line slurry pump pluggage
33	9/24/76	9/19/76	002	1 hour(est.)	2.7	3.0-10.0		SAC leaks.
34	10/6/76	10/1/76	003	35 min.	2.2	3.0-10.0		Faulty valve replacement (nitric acid).
35	10/14/76	10/9/76	001	90 min.	2.9	3.0-10.0		Overflow (stormwater) thru bypass to Outfall 001.
		10/11/76	003	50 min.	11.0	3.0-10.0		Contractor pumped out accumulated alkaline water
36	10/20/76	10/15/76	003	2 min.	10.2	3.0-10.0		Failure of automatic valve on pond discharge.
37	11/1/76	10/27/76	003	10 min.	10.4	3.0-10.0		Failure of automatic

11/1/80

Moundsville North Works - pH Excursion Chronology

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NPDES Permit Effective Date: January 17, 1975

Note: From 1/17/75 to 9/30/75 pH measured on Outfalls 001, 002, and 003 via 24-hour composite sample.

<u>pH Excursion Report No.</u>	<u>Report Date</u>	<u>Excursion Date</u>	<u>Outfall Involved</u>	<u>Length of Excursion</u>	<u>Measured pH</u>	<u>Permitted pH</u>	<u>Outfall Flow</u>	<u>Cause of Excursion</u>
38	11/8/76	11/3/76	003	30 min. 25 min. 25 min.	2.7 2.2 2.3	3.0-10.0 3.0-10.0 3.0-10.0		{ Acid waters from drainage ditch.
39	12/3/76	11/24/76	003	45 min.	1.9	3.0-10.0		Blockage in acid sewer line.
		11/25/76	003	39 min. + 10 min.	2.6	3.0-10.0		Blockage in acid sewer line.
		11/25/76	001	75 min.	2.7	3.0-10.0		Blockage in Outfall 001 sewer system.
		11/27/76	003	180 min. 10 min.	1.2 2.0	3.0-10.0 3.0-10.0		Blockage in acid sewer line.
				285 min.	2.4	3.0-10.0		Blockage in acid sewer line.
		11/28/76	003	20 min.	2.2	3.0-10.0		Acid waters from drainage ditch.
		11/29/76	003	195 min.	2.1	3.0-10.0		Residual acid in drainage ditch.
		11/30/76	003	240 min. } 370 min. }	1.4	3.0-10.0		Lime pump failure.
		12/1/76	003	60 min.	2.4	3.0-10.0		Lime pump failure.
								Residual acid in drainage ditch.
40	12/9/76	12/4/76	002	24 hours(est.)	2.6	3.0-10.0		Process failure in Pomaluse plant.
41	12/17/76	12/13/76 12/14/76	001 001	270 min.(est.) 150 min.(est.)	1.6 2.0	3.0-10.0 3.0-10.0	35 GPM 37 GPM	{ Damage to sewer line by construction work.
42	12/20/76	12/14/76	003	5 min.	2.8	3.0-10.0		Malfunction of acid valve (HCT).
43	12/22/76	12/17/76	003	5 min.	2.7	3.0-10.0		Acid water from drainage ditch
44	12/27/76	12/21/76	001	50 min.(est.)	12.0	3.0-10.0	35 GPM	Short-term overflow to Outfall 001 - cause

# Moundsville North Works - pH Excursion Chronology

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NPDES Permit Effective Date: January 17, 1975

Note: From 1/17/75 to 9/30/75 pH measured on Outfalls 001, 002, and 003 via 24-hour composite sample.

<u>pH Excursion Report No.</u>	<u>Report Date</u>	<u>Excursion Date</u>	<u>Outfall Involved</u>	<u>Length of Excursion</u>	<u>Measured pH</u>	<u>Permitted pH</u>	<u>Outfall Flow</u>	<u>Cause of Excursion</u>
45	1/3/77	12/28/76	003	40 min.	2.2	3.0-10.0		Process problems.
46	1/20/77	1/15/77	001	2 hours (est.)	12.7	3.0-10.0	50 GPM	Melting snow caused overflow to Outfall 001
		1/15/77	003	{ 25 min. 10 min.	11.0 10.8	3.0-10.0 3.0-10.0		{ Power failure caused control problem at 001 per system.
47	2/4/77	1/31/77	003	10 min. 5 min. 5 min.	2.8 2.9 10.8	3.0-10.0 3.0-10.0 3.0-10.0		HCl rupture disc failure Overneutralization.
48	2/25/77	2/21/77	001	175 min.	11.6	3.0-10.0	25-75 GPM	Sewer cleaning.
49	2/28/77	2/23/77	003	20 min.	10.8	3.0-10.0		Repairs to outlet pipe of pond.
50	3/25/77	3/20/77	002	3 hours	2.9	3.0-10.0		Blocked sewer line.
51	4/7/77	4/3/77	003	2 min. 30 min.	10.1 2.8	3.0-10.0 3.0-10.0		Heavy storm water flush of alkaline material. Overneutralization with HCl.

7/2/80  
10:00 AM

Report Date	Excursion Date	Effluent Characteristic And Outfall	Discharge Permit Limitation	Length of Excursion	Measured Discharge Condition...	Cause of Excursion
4/24/81	4/22/81	Suspended Solids 003	2500#/day max.	24 hours	2783#/day	Sampler error
2/20/80	2/17/80	pH 003	6.0-9.0	5 mins. 16 mins.	9.2 9.4	Over neutralization
2/21/79	2/16/79	Carbon Tetrachloride 003	20#/day max.	24 hours	43.8#/day	Circulation pump on carbon tetrachloride tank failed
11/13/79	11/8/79	BOD 003	1650#/day	24 hours	2145#/day	Blockage caused spillage into treatment proces:
10/12/78	10/9/78	BOD 003	1650#/day	24 hours	1935#/day	Unknown
9/7/78	9/2/78	pH 004	6.0-9.0	1 hour	2.0	Blocked line caused overflow into 004
7/19/78	7/12/78 7/13/78 7/14/78	Hexavalent Chromium 003	1.26#/day max.	7/11/78 to 7/13/78	1.63#/day 2.56#/day 1.49#/day	High pH in sewer prevented the reduction of Cr <sup>+6</sup> to Cr <sup>+3</sup>
5/11/78	5/9/78	Suspended Solids 003	2500#/day max	24 hours	3497#/day	Weather condition caused colids to flow into discharge

Report Date	Excursion Date	Effluent Characteristic And Outfall	Discharge Permit Limitation	Length of Excursion	Measured Discharge Condition	Cause of Excursion
2/23/78	2/29/78	pH 004	6.0-9.0	12 hours	10.4	Seal on caustic soda pump failed leaking into outfall 004
2/15/78	2/9/78	Untreated inorganic process effluent 004	N/A	8½ hours	N/A	Blocked sewer caused process waste to flow through 004 untreated; permit limitations were not violated
12/2/77	11/28/77	Color 003	APHA 300	--	APHA 350	Unknown
11/29/77	11/27/77	pH 003	6.0-9.0	80 mins.	2.0-5.9	Pluggage in neutralization system
10/28/77	10/16/77	BOD 003	1650#/day	24 hours	1792#/day	Blockage caused Pomalus acid plant spillage into treatment process
1/24/77	1/12/77	BOD 003	7200#/day	24 hours	7254#/day	Frozen lines upset process conditions and allowed excess material in effluent

Report Date	Excursion Date	Effluent Characteristic And Outfall	Discharge Permit Limitation	Length of Excursion	Measured Discharge Condition,...	Cause of Excursion
12/13/76	11/22/76 12/1/76	BOD 003	7200#/day	24 hours	15331#/day 7238#/day	Unknown
9/13/76	8/25/76 9/7/76	Hexavalent Chromium combined outfalls	16.8#/day	24 hours	23.9#/day 31.2#/day	Unknown
8/20/76	7/28/76	Hexavalent Chromium combined outfalls	16.8#/day	24 hours	18.8#/day	Blow down from cooling tower contained high solids
4/15/76	3/25/76	Hexavalent Chromium combined outfalls	16.8#/day	8 hours	22.1#/day	Level controller failure in cooling tower caused over flow to outfall

Initial non-compliance with pH limits resulted in issuance of EPA Administrative Order No. 74-466 on April 9, 1975. On May 2, 1975 Seller stated its responses to the USEPA Administrative Order No. 74-466. On May 20, 1975 USEPA sent Seller a letter indicating that the pH control improvements instituted by Seller satisfied the requirements of this order.

On April 29, 1977 Seller was notified that the EPA had requested legal action by the U.S. Attorney for the 104 pH excursions from the permit limits reported between January 17, 1975 and April, 1977. A negotiated settlement to this case culminated in issuance of a civil complaint on January 30, 1978, approval of a consent decree on March 17, 1978 and payment of a \$75,000 fine by Seller.

On the remaining excursions, no action has been taken by the EPA.

104  
7/13/78

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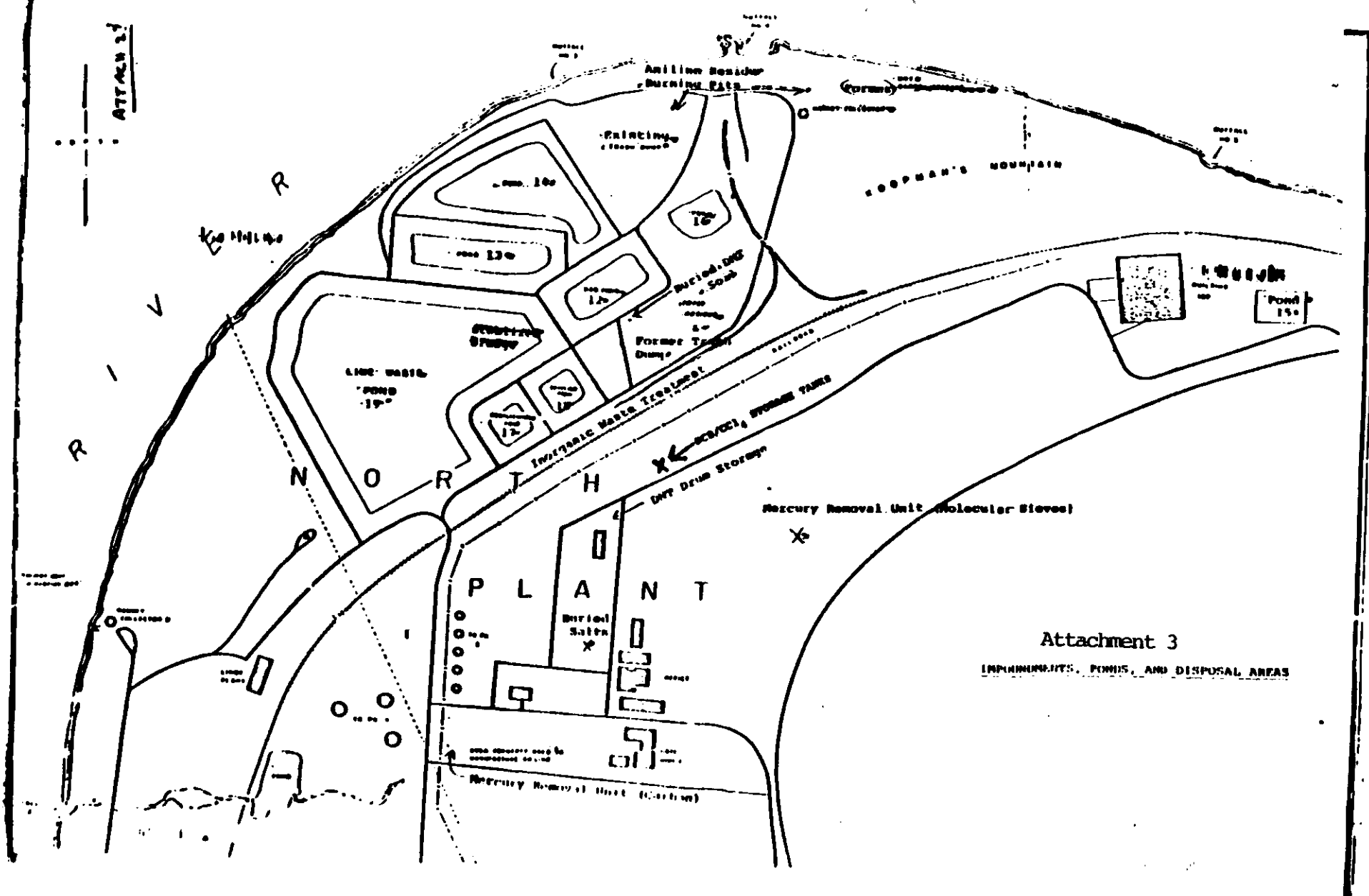
ATTACHMENT 2

<u>DATE</u>	<u>DESCRIPTION OF INCIDENT</u>	<u>AGENCY NOTIFIED</u>	<u>STATUS</u>
1/8/75	Approximately 50,000 lbs. maleic anhydride discharged to the Ohio River as a result of broken line. There was no significant effect on the river quality.	USEPA and WRD 1/17/75	No federal action; WRD issued an order and a warrant for the arrest of Seller's plant manager. The complaint was dismissed at magistrate's court hearing and a response to the order was submitted to WRD on 2/26/75.
6/8/76	Approximately 0.3 lbs. of TDA overflowed from a tank car to the Ohio River.	USOG, USEPA and WRD 6/8/76	No federal or state action.
5/2/78	Approximately 800 lbs. of TDA discharged to the inorganic waste treatment system caused an undetected amount of TDA to enter the Ohio River.	USEPA and WRD 5/11/78	No federal or state action.
1/29-2/4/78	Approximately 1,500 lbs. aniline were discharged to the Ohio River as a result of an accidental release in a process building.	WRD and USEPA 2/8/78	No federal action; WRD issued Notice to Comply on 2/8/78, Seller submitted compliance schedule that was implemented and approved by WRD.
1/19/79	Fire in the TDA process area caused TDA to flow to the inorganic treatment plant, bypassing organic treatment, however, no TDA was observed in the outfall.	WRD and USEPA 1/24/79	No federal or state action.
2/12/79	Approximately 296 lbs. of TDA were discharged to the Ohio River via steam traps outside of curbing in TDA process area.	WRD - 2/16/79	No state action.

ABNORMAL EFFLUENT DISCHARGES

ATTACHMENT 3

ATTACH 2.1



Attachment 3  
IMPLEMENTS, POND, AND DISPOSAL AREAS

ORIGINAL  
1/10/1970

cc: A H SUTTON  
G. L. CLARK  
R. SOBEL  
R. S. HUNT  
JMS  
J. DRESLAND

FILE: MOONDSVILLE  
ALLIED CHEMICAL CORPORATION

MEMORANDUM

RECEIVED

AUG 14 1978

DEPT. OF HEALTH  
OCCUPATIONAL HEALTH  
AND TOXICOLOGY

August 11, 1978

S. E. C.

AUG 14 1978

Dr. H. J. Robinson

*Ent  
H. J. Robinson  
Moundsville  
General*

Recommendations for Control of Human  
Health and Environmental Hazards -  
Moundsville TDI Plant

This will confirm discussion with you and Dr. Loewengart regarding subject recommendations requested by the TDI Task Force.

1. It is believed that urgent health and environmental problems dictate that certain of the recommendations be implemented immediately. These are marked with an asterisk in the attached draft.

2. Dr. Loewengart and I have discussed the urgent recommendations with J. E. Stansfield, G. K. Ryan, and D. M. Shapiro of SCD, and S. P. Schwartz of the Task Force. We concluded that essentially all of these recommendations are in the Division's plans.

3. Because of the serious nature of some of the problems, it is suggested that consideration be given to bringing them to the attention of Corporate management, and to review of action taken on them.

4. The attached draft will be sent for comment to the various Divisional and Corporate personnel whose inputs are the basis of the recommendations. It will then be revised as appropriate from the comments, and issued to the Task Force for action.

*H. C. Wohlers*  
H. C. Wohlers

/lyn

Attachment

cc: J. E. Stansfield  
G. Loewengart  
S. P. Schwartz  
J. Plaut  
G. K. Ryan  
D. M. Shapiro

ALLIED CHEMICAL CORPORATION

MEMORANDUM

D R A F T

August 11, 1978

ORIGINAL  
(Red)

D. S. Hamilton  
J. M. Hutchins  
G. Loewengart  
J. M. Quinn  
B. J. Samuels  
S. P. Schwartz  
C. D. Smith  
J. E. Stansfield  
C. J. Timken

Recommendations for Control  
of Human Health & Environmental Hazards  
Moundsville TDI Plant

As requested, subject attached recommendations have been prepared as inputs for TDI Task Force consideration and, as appropriate, for determination of related capital and operating expense.

H. C. Wohlers

/lyn

Attachment

cc: D. M. Aviado  
M. A. Friedman  
H. J. Robinson

Recommendations for  
Control of Human Health & Environmental Hazards  
Moundsville TDI Plant

2/10/80  
(Red)

General

\* 1. The maintenance effort should be increased substantially. This will help eliminate many of the existing hazards from leaks, deteriorated insulation, too frequent opening of equipment to clear plugging, and similar problems.

\* 2. Medical Services should select a competent outside occupational health specialist to review annual physical examination records of TDI plant employees for the purpose of

-determining whether test results indicate potential health problems with any particular group, and

-determining whether test procedures are adequate in quality and scope.

Appropriate action should be taken on any problems that are uncovered. Example: initiate additional DNT biological monitoring if a DNT - related health problem is indicated.

\* 3. Corporate Occupational Health should select an epidemiologist to determine whether a retrospective morbidity/mortality study of TDI employees is feasible and, if so, to conduct the study.

Human Health

DNT

Background summary:

-DNT is moderately toxic in acute exposure, and has serious chronic effects on the testes and liver.

- It is a mutagen, and a weak animal carcinogen
- The basis of the present ACGIH TWA of  $1.5 \text{ mg/m}^3$  does not include carcinogenicity findings, and recent chronic toxicity data.

Substantive  
(Rev)

1. DNT metabolism studies are needed to
  - determine whether simple biological monitoring (i.e., urine metabolite determinations) is practical to identify overexposure cases, and
  - determine whether animal metabolism leading to cancer is similar to that in humans.

With this objective and with industry cooperation, the CIIT DNT metabolism studies should be reviewed by Medical Affairs, and extended if necessary to meet the foregoing objectives. Note: A TDI industry group, with Allied represented by Mr. Ferguson, is working with CIIT on applicability of CIIT DNT metabolism studies to industry problems.

2. DNT reproduction and <sup>ter</sup>eratology studies should be undertaken with industry cooperation to determine whether these are significant hazards to male and female employees. This should include review and appropriate use of current CIIT work on sperm morphology and dominant lethal effects. Responsibility - Medical Affairs.

- \*
3. Medical Affairs recommends that the DNT TWA should be reduced to  $0.07 \text{ mg/m}^3$  (0.009 ppm) on the basis of recent animal carcinogenicity data. To <sup>help</sup> attain the TWA, the following changes should be among those made in the DNT unit:

- a) DNT leaks should be promptly repaired, DNT - saturated insulation replaced, and frequency of plugging reduced by improved steam tracing and by other appropriate piping changes.

- b) Washdown drains should be renovated, DNT - saturated flooring sealed, and flooring renovated to provide secure foundations for process equipment.
- c) The replacement of packed seals on wash columns with mechanical seals should be promptly completed.
- d) Spot ventilation on the neutralization sump and other open equipment should be installed
- e) Improved building ventilation should be installed.
- f) Present lab bench and ineffective hood should be replaced with a work area completely within a fume hood.

4. Personnel in the DNT area should wear rubber footwear, and gloves when hand contact is possible. Respirators should be worn in areas in which the recommended TWA has not been attained.

5. Existing plans should be promptly implemented to notify DNT personnel of the carcinogenicity hazard and consequent protective measures.

#### TDA

##### Background summary:

- TDA is fairly toxic in acute exposure; chronic exposure can cause severe liver damage.
- It is a mutagen and an animal carcinogen.  
Induction of carcinogenicity in animals by skin exposure is unclear.
- There is no ACGIH TWA standard.

1. TDA metabolic studies are needed to
  - determine if human metabolites are similar to those in animals in which TDA has been found carcinogenic.
  - identify a human metabolite that will permit biological monitoring of overexposure.

With this in mind, current Medical Affairs metabolite studies should be vigorously pursued.

2. A TDA skin exposure carcinogenicity study should be undertaken with an animal species having a metabolic process similar to that of humans. The study should preferably be undertaken as a cooperative TDI industry effort. Responsibility: Medical Affairs.

3. TDA reproduction and teratology studies should be undertaken with industry cooperation to determine whether there are significant hazards to male and female employees. Responsibility: Medical Affairs.

4. Medical Affairs recommends that a TWA of 0.05 mg/m<sup>3</sup> (0.01 ppm), equivalent on a molar basis to the proposed DNT TWA, should be established. Currently, wearing of respirators and rubber foot protection in the filter areas should be effectively enforced, as well as wearing of suitable gloves when skin contact is possible.

5. To reduce exposure, the following changes should be made in the plant:

- a) Current efforts should be vigorously pursued to develop a simpler filtration process with much reduced potential for leakage and spillage. A greatly improved process is mandatory for effective

reduction of exposure. Alternatively, the process should be run with more active catalyst so as to reduce or eliminate filtration.

- b) Insulation, sizing and steam tracing of piping should be improved to reduce frequency of plugging with resultant spillage and leakage.

### Phosgene

#### Background summary:

-Phosgene has very high acute toxicity. Release of a large amount in a populated area would result in high mortality.

-Long term low level animal exposure data are lacking for assessment of chronic effects and carcinogenicity.

\* 1. To reduce effects of a catastrophic rupture, use of present storage tanks containing about 200,000 lb. phosgene should be discontinued and the smaller "off specification" tanks used for phosgene storage. These tanks should be contained within a diked and vapor tight shroud connected to a caustic scrubber for disposal of any released phosgene.

2. Use of the large chlorine weigh tanks should be discontinued and a less hazardous alternative used for process feed.

## TDI

### Background summary:

ORIGINAL  
(Red)

- TDI is highly toxic in acute exposure.
- Chronic exposure causes serious pulmonary sensitization in susceptible persons: It is unclear whether sensitization is caused by long term low level exposure, or short periods of exposure to relatively high concentrations.
- The ACGIH has proposed a reduction in the TDI TWA from 0.02<sup>0</sup> to 0.002 ppm in 1980. NIOSH has proposed a reduction to 0.003 ppm.

\* 1. Defective and inadequate insulation should be replaced to help eliminate plugging and resultant releases believed responsible for development of pulmonary sensitization.

2. In the belief that an ACGIH TLV of 0.002 ppm for TDI will be adopted for 1980, expenditures should be planned to permit reduction of average air concentrations to this level.

## MDA

### Background summary:

- MDA is moderately toxic in acute exposure.
- Severe liver damage can result from chronic exposure to low levels.
- Recent evidence indicates that MDA has little or no human carcinogenic potential. As a result, the ACGIH has removed it from its carcinogen list and assigned a proposed TWA of 0.1 ppm.

1. MDA reproduction and tetatology studies should be undertaken with industry cooperation to determine whether these are significant hazards to male and female employees and custo  
Responsibility: Medical Affairs.

\* 2. The recently developed Buffalo Research Laboratory analytical method for MDA in air (vapor and particulates) should be promptly verified in the field and adequate personal and area monitoring undertaken in the MDA unit to determine whether the proposed ACGIH TLV of 0.1 ppm is being met. In the interim, necessary action should be taken to insure that packout operators wear respirators during operations.

#### Control Laboratory

\* 1. Weighings and other DNT and TDA operations conducted outside a hood should be transferred to a hood. Present inadequate air flow in hoods used for DNT and TDA work should be corrected.

#### Environmental Hazards

\* 1. The following steps should be taken to assess the hazard of the existing DNT discharge to the Ohio in view of its human carcinogenicity potential.

- a) Determine DNT content of sediments below the outfall, and of at least 5 fish species, 5 samples of each.
- b) Assess bioconcentration potential from the octanol/water partition coefficient and biodegradation rate. Determine bioconcentration factor if bioconcentration potential is significant. Responsibility: Medical Affairs.
- c) Assess chronic toxicity hazard to fish by running a partial life cycle test with one species. Assess hazard to macroinvertebrates by running a chronic toxicity test. Responsibility: Medical Affairs.

ORIGINAL  
(Red)

ORIGINAL  
(Red)

2. The following basic tests should be run for a preliminary assessment of the environmental hazards of TDA and MDA (principally for spill hazard assessment).

Responsibility: Medical Affairs.

- a) 96 hr  $LC_{50}$  fresh water fish species
- b) 48 hr  $LC_{50}$  daphnids
- c) Octanol/water partition coefficient (MDA only)
- d)  $BOD_5/COD$  ratio

Additional testing should be undertaken if results indicate that either material represents a serious hazard.

3. Provision should be made to reduce organic contaminants in the wastewater outfall in anticipation of the 1983 effective date of the toxic pollutants provisions of the 1977 Clean Water Act Amendments. Suggested reductions:

- a) Dichlorobenzenes from a maximum of 11 ppm (NPDES permit data) to 0.7 ppm. The 0.7 ppm value is based on 10x the draft water quality criterion of 70 ppb.
- b) Dinitrotoluene from a maximum of 22 ppm to nondetectable in the expectation that carcinogenicity evidence will result in setting the discharge limit to below the nondetectable level. Most of the DNT is thought to originate from DNT plant waste drains; recommendations for reducing DNT leaks, etc., should reduce the effluent DNT content substantially.

4. Consideration of halting North Plant Ranney well pumping (e.g., as a result of halting TDI plant operations) should involve the following:

- a) Assurance that continued pumping of the South Plant wells will avoid contamination of the Washington Lands and Moundsville Country Club wells by organics from the North Plant aquifer.
- b) Determination of the amounts of organics that will enter the Ohio River after top sealing the contamination sources, and obtaining permits from appropriate regulatory agencies for the resulting discharges.

5. An adequate diversion pond should be constructed to contain organic spills and to permit inspection and repair of the equalization pond.

6. Plans to comply with eventual provisions of the spill hazard section of the 1977 Clean Water Act Amendments should include determination of whether present diking will contain ruptures occurring above dike levels. In some of the existing tank-dike systems, a rupture well above dike level will result in the spill stream clearing the dike top.

#### Solid Waste

1. Planned efforts should go forward promptly to develop methods to remove and stabilize solids in the inorganic and formaldehyde treatment waste ponds. Plans should be made for acceptable disposal of the solids. These recommendations are made in the belief that the actions will be required by RCRA rules.

2. Planned efforts should go forward promptly to develop and operate a process for compaction of TDA - formaldehyde process wastes as produced, including a method for acceptable disposal. The formaldehyde waste and black water ponds should then be properly sealed and abandoned.

ORIGINAL  
(Red)

3. Planned efforts should go forward promptly to develop a process and operate for compaction/ stabilization of the inorganic waste treatment unit sludge as produced, including an acceptable long term method for disposal.

4. Contaminants in the following abandoned operating and waste areas should be removed and disposed of as much as practicable, and the areas top sealed as recommended by consultants.

- a) Aniline process
- b) Trash dump
- c) NAD pond
- d) Lime pits (if required by RCRA regulations)

5. Steps should be taken promptly to finalize on a method for disposal of 300-500,000 lb. drummed waste DNT, and the disposal implemented.

6. Prompt steps should be taken to finalize on one of the proposed methods for disposal of the approximately 60,000 tons of TDI residue, the disposal implemented, and the area top sealed if required by RCRA regulations.

#### Air Pollution

\* 1. Plans for development of a process to remove DNT from the SAC unit feed should be vigorously pursued, and the process installed so that the emission of about 700-1000 lb. DNT/day can be reduced to an acceptable level.

\* 2. Planned efforts should go forward promptly to develop and install a process to remove particulates and organics from the carbon regeneration furnace emissions. Representative samples of current emissions should be analyzed to permit assessment of the organic emissions hazard so that a priority

for emissions abatement can be assigned. Finally, the furnace should be relocated so that an upset is unlikely to contaminate the Pomalus unit.

ORIGINAL  
(Red)

## ALLIED CHEMICAL CORPORATION

## MEMORANDUM

March 18, 1977

APR 4 1977

E. M. CALLAHAN

ORIGINAL  
(Red)

TO: R. Sobel

SUBJECT: Moundsville Plant Audit - 3/15&16/77

As you know, a number of serious deficiencies in current plant waste control facilities exist at subject complex that were uncovered by the recent audit. Several of these have significant potential regulatory implications that could bring significant or serious enforcement actions on the plant, as you well know. These include unregistered outfalls, ground water contamination, and lack of spill control.

It is recognized your department will be moving promptly on the implementation necessary to minimize the Corporation's liability in regard to these items; however, this memorandum serves to emphasize this department's concern over one element relating to spill control. Our cursory inspection on March 16 of the CMP process revealed a potential for a gross discharge of chlorinated hydrocarbons to the Ohio River. All storage tanks in this area are completely undiked or uncurbed with no containment; all equipped with pyrex sight glass that have little or no shielding around them; and, if I was informed properly, a loss in these tank farms would go direct to the Ohio River. Considering our current concerns over keeping the Corporation out of the furor now current concerning carcinogenic chlorinated hydrocarbons in the Ohio River, it would appear that a prompt program for immediate emergency containment efforts, as well as permanent requirements, is urgently required at the plant. Among those suggested for consideration are:

1. An emergency containment basin on the sewer servicing this operation that would intercept and retain the heavier insoluble chlorinated hydrocarbons in the event of a spill. Depending on the hydraulics, this might be effected by dredging the area immediately upstream of the 001 monitoring station and a installing a temporary wooden overflow dam and providing portable pumping capabilities.
2. The existing pyrex sight glasses should be provided with guards to prevent their accidental fracture. Armored sight glasses should be considered for this use. As an immediate measure, the bottom sight glass valves should be maintained closed except when inventory readings are being taken.

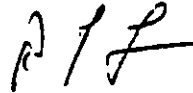
Page 2

Moundsville Plant Audit - 3/15&16/77  
March 18, 1977

ORIGINAL  
(Red)

3. Correction should include concrete diking and paving of the diked areas.

Similar considerations are undoubtedly necessary in areas of tanks and tank farms including process areas and the tank car and truck loading locations.



R. L. Fawcett

RLF/nm

cc: E. J. Shields

Re: Bulletin Approval ECTB-42 and ECTB-52

Insert for Mr. Sobel's statement:

Treatment or disposal of wastes generated by use of this product may be of concern depending on the nature of the wastes and the means of discharge, treatment, or disposal. Users of this product should review their operations in terms of applicable federal, state, and local laws and regulations and are advised to consult with appropriate regulatory agencies before discharge, treatment, or disposal of wastes.

ALLIED CHEMICAL CORPORATION

MEMORANDUM

September 8, 1978

2 13 1978  
ORIGINAL  
H.J.W.

W. H. Case  
SEP 13 1978  
Moundville  
H. J. W.

TO: H. J. Robinson

SUBJECT: Environmental Recommendations Moundville TDI Plant  
(Refer Letter HCW/HJR this subject dated 8/11/78)

Comments on reference document including draft recommendations by H. C. Wohlers follow

1. Refer Environmental Hazards, Page 7 Item 1

As members of the TRAC Committee are aware, SCD Environmental instituted studies to determine the extent of DNT discharge at Moundville and to gage its environmental effect. This effort was initiated in March basis letter WMR/RS dated 3/3/78. It is believed that a reference to this effort should be made. The present document indicates to the uninitiated reader that no work had been initiated prior to reference recommendations.

In general the referenced recommendations appear to the writer to be too far reaching and pace too rapid, not allowing time to develop definitional information and assessment of that information.

The determination of DNT content of sediment below the outfall is in progress. The division reported such efforts in letter GRR/RS dated 8/11/78.

The referenced recommendations for the assessment of bio-concentration potential, etc. should be proceeded by a detailed literature review. If information is not available basis the literature review, and effluent definition, DNT contents of sediment, etc. indicate that concentrations and loadings are significant, then the determination of a bioconcentration factor would be worthwhile. The determination of chronic toxicity factors to fish is something that the writer feels could be postponed until a greater data base is accumulated. I support obtaining acute toxicity information, i.e. 96 hr. LC<sub>50</sub> for fresh water fish species but do not support the determination of test work beyond that until data have been evaluated.

2. Refer Item 2(d)

The determination of BOD/COD ratio is of small value; rather if the desire is to obtain an indication of the degradability

of DNT, TDA and MDA, it is suggested that Warburg studies be conducted. These have the benefit of being relatively low cost and yet indicate oxygen uptake values, toxicity and inhibitory qualities of the chemicals.

3. Refer Item 3, Page 8

It is believed that no action should be taken to reduce organic contamination in anticipation of the 1983 statutory date until guidelines for toxics have been established by the government or a human health problem potential has been determined. The initial step should be to define the problem but not to act until the extent of reduction that the government will mandate has been established.

4. Refer Recommendation 4, Page 8

It is strongly recommended that the pumping of the North plant Rainey well not be halted. The organic phase in these wells should be removed on a frequent basis. The determination of actual steps to be conducted should be on the basis of a hydrogeological study conducted by experts.

5. Refer Recommendation 6, Page 9

No diking is 100% safe relative to prevention of problem discharges. It is not feasible nor has there been any indication that regulatory authorities will require high level diking to cope with corrosion failure of tanks above the dike height. This problem should be solved by proper selection of the material of construction for the storage tank and a repetitive system of non-destructive testing to indicate material thickness.

6. Refer Solid Waste, Recommendation 4, Page 10

The removal of materials from abandoned operating waste areas is questioned. These materials should only be removed if they represent a problem, i.e. contamination entering the Ohio River aquifer or to a local water system. The recommendation to proceed to remove these materials should be held in abeyance until hydrogeological experts indicate it necessary.

In general, I believe the draft recommendations are presented in a manner which dictates effort without adequate development of a data base. The recommendations also fail to recognize the extent of division activities in correcting problems at the Moundville site.

I will be happy to discuss the above in more detail at your convenience.



W. M. Reiter

cc: W. F. Blank  
G. Loewengart  
J. Plaut  
R. Sobel  
A. H. Sutton  
H. J. Wallum /

ORIGINAL  
(Red)

ALLIED CHEMICAL CORPORATION

MEMORANDUM

August 31, 1978

TO: H. J. Robinson

FROM: A. H. Sutton

RE: RECOMMENDATIONS FOR CONTROL OF HUMAN HEALTH AND  
ENVIRONMENTAL HAZARDS - MOUNDSVILLE TDI PLANT  
SCD RESPONSE/ACTION PLAN

ORIGINAL  
(Red)  
Mr. Stevenson  
file -  
R. S.  
SEP 12 1978

Dr. H. C. Wohlers is circulating a draft (dated August 11, 1978) containing his recommendations of actions to be undertaken relative to health and environmental concerns at the Moundsville TDI Plant. Attached to this letter is a point by point response to Dr. Wohlers' recommendations.

In general, the draft report raises several issues which tend to fall into three categories:

1. Additional Toxicological/Environmental Testing - The SCD Occupational Health and Toxicology Department has planned a meeting on September 27, 1978 to come to a "meeting of minds" between SCD, Corporate Medical Affairs and Corporate Environmental Services on the proposed testing.
2. Establish Exposure Limits - A meeting was held on August 28, 1978 with W. S. Ferguson, J. B. Charm, K. G. Gould, K. H. Ferber, G. L. Loewengart, R. J. Hunt, and D. M. Shapiro to set Industrial Hygiene Guides (IHG's) for DNT and TDA. The IHG for DNT was set at 1 mg/m<sup>3</sup> (0.13 ppm) and for TDA at 0.5 mg/m<sup>3</sup> (0.1 ppm); both with "skin" notations.
3. Improved Operations - The Division's plans are presented with responsibilities and target dates noted.

In some cases, we have noted differences of opinion or emphasis from those in Dr. Wohlers' draft. We include these to provide the TDI Task Force with the best available data at this time.

*A. H. Sutton*  
A. H. Sutton

DMS:tnm

cc: J. S. Bardin  
J. C. Bishop  
J. B. Charm  
G. L. Clark  
W. S. Ferguson  
K. G. Gould

~~ATTACHED~~  
R. L. Higgins  
G. L. Loewengart  
D. M. Shapiro  
J. V. Muthig  
J. Plaut

W. R. Reiter  
C. D. Smith  
R. Sobel  
J. E. Stansfield  
W. Taylor

Recommendations for  
Control of Human Health & Environmental Hazards  
Moundsville TDI Plant  
SCD Response/Action plan

FINAL  
(4)

Recommendations from Dr. Wohler's draft are *italicized*. SCD's response follows. Source Information: SCD Operations Services (1); Medical Affairs (2); Plant Staff (3); Corporate Environmental Services (4).

GENERAL

1. *The maintenance effort should be increased substantially. This will help eliminate many of the existing hazards from leaks, deteriorated insulation, too frequent opening of equipment to clear plugging, and similar problems.*

It has been estimated that four mechanics daily for six months and then two mechanics daily for an indefinite period will be required to upgrade and maintain the plant's mechanical standard, repair leaks, etc. The estimated first year labor costs for this additional manning will be \$79,000. This estimate excludes unscheduled shutdowns and periodically scheduled maintenance shutdowns. The plant is re-evaluating this manpower requirement in light of the recently set IHG's for both DNT and TDA. (3)

2. *Medical Services should select a competent outside occupational health specialist to review annual physical examination records of TDI plant employees for the purpose of*

- determining whether test results indicate potential health problems with any particular group, and*
- determining whether test procedures are adequate in quality and scope.*

*Appropriate action should be taken on any problems that are uncovered. Example: initiate additional DNT biological monitoring if a DNT - related health problem is indicated.*

K. G. Gould will be contacting A. F. Ritardi on how this can be done. In addition, blood methemoglobin determination has been added to the upcoming annual physical examination program. (1)

3. *Corporate Occupational Health should select an epidemiologist to determine whether a retrospective morbidity/mortality study of TDI employees is feasible and, if so, to conduct the study.*

A retrospective morbidity study has been conducted by Dr. Nasr (Univ. of Michigan). W. S. Ferguson has reviewed the MORDAT files for Moundsville North and on a proportionate mortality basis finds nothing remarkable. Mr. Ferguson does not consider further epidemiology feasible at this time. (4)

## Background Summary:

- DNT is moderately toxic in acute exposure, and has serious chronic effects on the testes and liver.
- It is a mutagen, and a weak animal carcinogen.
- The basis of the present ACGIH TWA of  $1.5 \text{ mg/m}^3$  does not include carcinogenicity findings, and recent chronic toxicity data.

## 1. DNT metabolism studies are needed to

- determine whether simple biological monitoring (i.e., urine metabolite determinations) is practical to identify overexposure cases, and
- determine whether animal metabolism leading to cancer is similar to that in humans.

With this objective and with industry cooperation, the CIIT DNT metabolism studies should be reviewed by Medical Affairs, and extended if necessary to meet the foregoing objectives. NOTE: A TDI industry group, with Allied represented by Mr. Ferguson, is working with CIIT on applicability of CIIT DNT metabolism studies to industry problems.

D. M. Shapiro has organized a meeting on Sept. 27, 1978, to discuss proposed toxicological testing. The determination of urinary nitro-bodies was considered for biological monitoring of exposed employees but was not added to the medical program because of the unavailability of a standard analytical procedure plus the inability to evaluate such data without more knowledge of the metabolic fate of DNT. (1)

## 2. DNT reproduction and teratology studies should be undertaken with industry cooperation to determine whether there are significant hazards to male and female employees. This should include review and appropriate use of current CIIT work on sperm morphology and dominant lethal effects. Responsibility - Medical Affairs.

This will be discussed at the September 27 meeting. (1)

3. Medical Affairs recommends that the DNT TWA should be reduced to  $0.07 \text{ mg/m}^3$  (0.009 ppm) on the basis of recent animal carcinogenicity data.

Representatives of SCD, Corporate Environmental Services and Medical Affairs met to set an Industrial Hygiene Guide (IHG) for DNT. The IHG was set at  $1 \text{ mg/m}^3$  (0.13 ppm) with a "skin" notation. The OSHA standard and ACGIH TLV for DNT is  $1.5 \text{ mg/m}^3$  (0.2 ppm) with a "skin" notation. (1)

To help attain the TWA, the following changes should be among those made in the DNT unit:

ORIGINAL  
(Red)

- a) DNT leaks should be promptly repaired, DNT - saturated insulation replaced, and frequency of plugging reduced by improved steam tracing and by other appropriate piping changes.

Prompt repair of DNT leaks has been ordered. The plant has submitted an appropriation request to upgrade process equipment insulation and tracing in the DNT building. The estimated cost of this job is \$35,000 with a completion date of 1/1/79 contingent on approval by 9/7/78. (3)

- b) Washdown drains should be renovated, DNT - saturated flooring sealed, and flooring renovated to provide secure foundations for process equipment.

The TDI Task Force is working on a job to directly connect all drain pipes to the sewers. The estimated cost of this project is \$10,000. Before this project can be completed, the DNT building underground erosion repairs that are required to stabilize the building floors would have to be completed at an estimated cost of \$200,000. A consultant firm is presently studying the job to determine the overall work required. A completion date estimate is not available at this time. (3)

- c) The replacement of packed seals on wash columns with mechanical seals should be promptly completed.

The replacement of column packed seals with mechanical seals is 75% complete. The 1/1/79 completion target for this estimated \$10,000 job can be met. (3)

- d) Spot ventilation on the neutralization sump and other open equipment should be installed.

Spot ventilation on the neutralizer sump and other open equipment will be installed as indicated by emission sampling which is scheduled for completion by 9/8/78. Completion of this work is dependent on the air sampling study. An estimated \$50,000 is projected for overall spot ventilation. This could be completed by 1/1/79. (3)

- e) Improved building ventilation should be installed.

A building ventilation study is planned to determine the air change frequency and heating requirements to reduce airborne DNT levels. The overall building ventilation would cost an estimated \$75,000. A completion date estimate is not available at this time. (3)

- 6) Present lab bench and ineffective hood should be replaced with a work area completely within a fume hood.

(Red)

The present DNT building lab bench and hood will be replaced with a new improved system at an estimated cost of \$25,000 with a projected 11/1/78 completion date. (3)

4. Personnel in the DNT area should wear rubber footwear, and gloves when hand contact is possible. Respirators should be worn in areas in which the recommended TWA has not been attained.

Operators wear full body clothing including long sleeves at all times, rubber gloves when there is potential for hand contact with DNT and rubber boots or shoe coverings when there is potential for foot contact with spills or puddles of DNT.

At present, organic vapor respirators are worn when outside the Building 55 control room; however, required respiratory protection may only be necessary during process upsets, spills, line openings and during quality control sampling (until such time as sampling systems become enclosed and ventilated). In addition, operators wash-up prior to eating and are required to shower and change clothing before leaving the plant. (1,3)

5. Existing plans should be promptly implemented to notify DNT personnel of the carcinogenicity hazard and consequent protective measures.

Starting August 24, 1978, R. J. Hunt (SCD Occupational Health & Toxicology), I. Dobrushin (Plant Industrial Hygienist) and R. L. Higgins (Plant safety supervisor) presented this information to plant supervision, the union safety committee, and the workers. (3)

#### TDA

1. TDA metabolic studies are needed to
- determine if human metabolites are similar to those in animals in which TDA has been found carcinogenic.
  - identify a human metabolite that will permit biological monitoring of overexposure.

With this in mind, current Medical Affairs metabolite studies should be vigorously pursued.

D. M. Shapiro will be presenting M. A. Friedman's proposed metabolism studies on TDA at the International Isocyanate Institute meeting on Sept. 11, 1978. After review and comments by member companies, we will be seeking joint industry funding. (1)

2. A TDA skin exposure carcinogenicity study should be undertaken with an animal species having a metabolic process similar to that of humans. The study should preferably be undertaken as a cooperative TDI industry effort. Responsibility: Medical Affairs.
3. TDA reproduction and teratology studies should be undertaken with industry cooperation to determine whether there are significant hazards to male and female employees. Responsibility: Medical Affairs.

These items (2 and 3) will be discussed at the Sept. 27th meeting. (1)

4. Medical Affairs recommends that a TWA of  $0.05 \text{ mg/m}^3$  (0.01 ppm) equivalent on a molar basis to the proposed DNT TWA, should be established. Currently, wearing of respirators and rubber foot protection in the filter areas should be effectively enforced, as well as wearing of suitable gloves when skin contact is possible.

The IHG for TDA was set at  $0.5 \text{ mg/m}^3$  (0.1 ppm) with a "skin" notation. TDA operating personnel are required to wear respirators, rubber foot protection and gloves where TDA exposure potential is present. (1)

5. To reduce exposure, the following changes should be made in the plant:

a) Current efforts should be vigorously pursued to develop a simpler filtration process with much reduced potential for leakage and spillage. A greatly improved process is mandatory for effective reduction of exposure. Alternatively, the process should be run with more active catalyst so as to reduce or eliminate filtration.

The TDI Task Force is vigorously pursuing a new improved filtration process to reduce leak potential. At present an "Artisan" filter of new design is being tested at the plant. No cost or implementation schedule is available at this time. Estimated cost for the filter and sealers unit which would be required is \$50,000. (3)

b) Insulation, sizing and steam tracing of piping should be improved to reduce frequency of plugging with resultant spillage and leakage.

Insulation and tracing upgrading is being worked on by the TDI Task Force. The work probably will be done through major maintenance request. An estimated \$400,000 will be required to complete the job. (3)

ORIGINAL  
(Red)

Background Summary:

- Phosgene has very high acute toxicity. Release of a large amount in a populated area would result in high mortality.
- Long-term low level animal exposure data are lacking for assessment of chronic effects and carcinogenicity.

(Data from studies on humans, which are in progress at New Orleans, show no decrease in lung function unless a coexistence of upper respiratory tract infection was present during exposure). (1)

1. To reduce effects of a catastrophic rupture, use of present storage tanks containing about 200,000 lb. phosgene should be discontinued and the smaller "off specification" tanks used for phosgene storage. These tanks should be contained within a diked and vapor tight shroud connected to a caustic scrubber for disposal of any released phosgene.

A G.O. is being prepared by SCD Engineering to dike and contain the small phosgene tanks at Building 66 and to make the required changes in the gas plant to offset the loss of stream factor that this smaller phosgene inventory will entail. This will also improve gas plant reliability. Estimated cost is \$350,000.

2. Use of the large chlorine weigh tanks should be discontinued and a less hazardous alternative used for process feed.

A G.O. is being prepared that considers elimination of the chlorine weigh tanks and running the phosgene converters directly from the South Plant Chlorine feed line. Estimated cost of this project is \$5,000. A 1/1/79 completion date is estimated.

TDIBackground Summary:

- TDI is highly toxic in acute exposure.
- Chronic exposure causes serious pulmonary sensitization in susceptible persons. It is unclear whether sensitization is caused by long-term low level exposure, or short periods of exposure to relatively high concentrations.
- The ACGIH has proposed a reduction in the TDI TWA from 0.02 to 0.002 ppm in 1980. NIOSH has proposed a reduction to 0.003 ppm.

Allied Chemical, other isocyanate producers and the International Isocyanate Institute have been submitting comments to NIOSH and will be submitting information to ACGIH and OSHA in an effort to fight the proposed reduction in exposure limits. (1)

1. Defective and inadequate insulation should be replaced to help eliminate plugging and resultant releases believed responsible for development of pulmonary sensitization.

ORIGINAL

A major maintenance request has been submitted to upgrade the TDI plant. (3)

2. In the belief that an ACGIH TLV of 0.002 ppm for TDI will be adopted for 1980, expenditures should be planned to permit reduction of average air concentrations to this level.

The plant is studying ways to further reduce TDI environmental levels to meet the possible 0.003 or 0.002 ppm TDI standard. Plant time-weighted average exposure levels are currently in the range of 0.003 - 0.008 ppm depending on job classification. Peak exposures exceed allowable limits during process upsets (spills, overflows, etc). A process equipment decontamination facility is under study to improve peak TDI emission during maintenance overhauls and breakdowns. A cost figure for this proposal will not be available until studies are completed. (3)

#### MDA

1. MDA reproduction and teratology studies should be undertaken with industry cooperation to determine whether these are significant hazards to male and female employees and customers. Responsibility: Medical Affairs.

This will be reviewed at the September 27th meeting. (1)

2. The recently developed Corporate Analytical Laboratory analytical method for MDA in air (vapor and particulates) should be promptly verified in the field and adequate personal and area monitoring undertaken in the MDA unit to determine whether the proposed ACGIH TLV of 0.1 ppm is being met. In the interim, necessary action should be taken to insure that packout operators wear respirators during operations.

A detailed study of airborne MDA levels will be done using the recently developed Corporate Analytical Laboratory method. Based on the outcome of these tests, process upgrading as required will be completed. This study is projected for completion by 1/1/79. In the interim, respiratory protection equipment is being used in the packout area. (3)

## Control Laboratory

1. Weighings and other DNT and TDA operations conducted outside a hood should be transferred to a hood. Present inadequate air flow in hoods used for DNT and TDA work should be corrected. ORIGINAL  
(Red)

All DNT and TDA sample and test work is being carried out in laboratory hoods. A hood ventilation efficiency study will be completed by 10/1/78 to determine what corrective actions are required, if any. In addition, intensified industrial hygiene and safety training will be provided for laboratory personnel. The initial training phase covering all TDI health safety precautions will be complete by 1/1/79. (3)

## Environmental Hazards

1. The following steps should be taken to assess the hazard of the existing DNT discharge to the Ohio in view of its human carcinogenicity potential.
  - a) Determine DNT content of sediments below the outfall, and of a least 5 fish species, 5 samples of each.
  - b) Assess bioconcentration potential from the octanol/water partition coefficient and biodegradation rate. Determine bioconcentration factor if bioconcentration potential is significant. Responsibility: Medical Affairs.
  - c) Assess chronic toxicity hazard to fish by running a partial life cycle test with one species. Assess hazard to macroinvertebrates by running a chronic toxicity test. Responsibility: Medical Affairs.
2. The following basic tests should be run for a preliminary assessment of the environmental hazards of TDA and MDA (principally for spill hazard assessment). Responsibility: Medical Affairs.
  - a) 96 hr LC<sub>50</sub> fresh water fish species
  - b) 48 hr LC<sub>50</sub> daphnids
  - c) Octanol/water partition coefficient (MDA only)
  - d) BOD<sub>5</sub>/COD ratio

Additional testing should be undertaken if results indicate that either material represents a serious hazard.

Analytical results on 21 samples of river sediment taken at 3 depths and 7 locations in the vicinity of the Moundville North outfalls showed non-detectable levels of DNT. (3)

Environmental testing on DNT is being conducted by

the U.S. Army. G. L. Loewengart will be contacting the Project Manager to obtain the data that is available. A review of available data on both DNT and TDA with recommendations for further testing will be made at the September 27th meeting. (1,2)

3. Provision should be made to reduce organic contaminants in the wastewater outfall in anticipation of the 1983 effective date of the toxic pollutants provisions of the 1977 Clean Water Act Amendments. Suggested reductions:
- a) Dichlorobenzenes from a maximum of 11 ppm (NPDES permit data) to 0.7 ppm. The 0.7 ppm value is based on 10x the draft water quality criterion of 70 ppb.

Plans are to install DCB-CCl<sub>4</sub> still in the phosgenation process. Estimated cost \$90 M. Estimated completion - 3rd quarter, 1979. This project will significantly reduce the DCB discharge to the process sewer system and will minimize the amount of DCB requiring toll distillation or off-site disposal. (3)

- b) Dinitrotoluene from a maximum of 22 ppm to non-detectable in the expectation that carcinogenicity evidence will result in setting the discharge limit to below the non-detectable level. Most of the DNT is thought to originate from DNT plant waste drains; recommendations for reducing DNT leaks, etc., should reduce the effluent DNT content substantially.

Current plans include installation of a Selas separator in the nitration process prior to the storage tanks to remove and recycle emulsified water from the product DNT. This project will eliminate one of the process streams now going to the inorganic sewer system. Estimated cost \$150,000. Estimated completion - 3rd quarter, 1979.

In addition, a process study by SCD Engineering is in progress to define additional projects to abate the amount of DNT discharged from the nitration process. A program to meet the 1984 standards should be finalized during 1979. (3)

4. Consideration of halting North Plant Ranney well pumping (e.g., as a result of halting TDI plant operations) should involve the following:
- a) Assurance that continued pumping of the South Plant wells will avoid contamination of the Washington Lands and Moundsville Country Club wells by organics from the North Plant aquifer.

- b) Determination of the amounts of organics that will enter the Ohio River after top sealing the contamination sources, and obtaining permits from appropriate regulatory agencies for the resulting discharges. ORIGINAL (Red)

Per the recommendations of the consulting firm of Geraghty and Miller Ground Water study, the following actions are planned to mitigate the effect of the contaminated aquifer:

- a) Maintain pumping of the South Plant's Wells. Standard practice.
  - b) Maintain a minimum pumping rate on the North Plant Well to assure that the hydraulic gradient toward the well is maintained (estimated required rate is 830 gpm). At present, this requirement can be satisfied by use of once-through cooling water in the Pomalus process.
  - c) Install a monitoring system to record water table levels, river levels and Ranney Well flow rates. Estimated cost - \$40,000. Estimated completion - 2nd quarter, 1979.
  - d) Cover appropriate surface areas to minimize ground water leaching. Estimated cost - \$300,000. Estimated completion - 4th quarter, 1979. (3)
5. An adequate diversion pond should be constructed to contain organic spills and to permit inspection and repair of the equalization pond.
6. Plans to comply with eventual provisions of the spill hazard section of the 1977 Clean Water Act Amendments should include determination of whether present diking will contain ruptures occurring above dike levels. In some of the existing tank-dike systems, a rupture well above dike level will result in the spill stream clearing the dike top.

At present, 90 of the 98 storage tanks in use at the North Plant have been provided with containment. Division Engineering is presently scoping a project to provide additions and revisions to the present diking facilities. Alternative methods of providing improved spill diversion capability are also being evaluated by Division Engineering. (3)

#### Solid Waste

1. Planned efforts should go forward promptly to develop methods to remove and stabilize solids in the inorganic and formaldehyde treatment waste ponds. Plans should be made for acceptable disposal of the solids. These recommendations are made in the belief that the actions will be required by RCRA rules.

An evaluation is in progress to determine the feasibility of filtration and subsequent on-site incineration as the disposal method for this material.

2. Planned efforts should go forward promptly to develop and operate a process for compaction of TDA - formaldehyde process wastes as produced, including a method for acceptable disposal. The formaldehyde waste and black water ponds should then be properly sealed and abandoned. ORIGINAL  
11-10

Various methods for improved organic treatment and pollutant source abatement are being evaluated. At present operating conditions, the black water pond should be empty in 1980. (3)

3. Planned efforts should go forward promptly to develop and operate a process for compaction/stabilization of the inorganic waste treatment unit sludge as produced, including an acceptable long-term method for disposal.

A permit application has been submitted to allow stabilization and disposal of this sludge by the Chemfix process. Expect to complete this project in 1978 at an operating expense of \$240,000. Engineering studies are underway to develop methods to substantially reduce the rate of sludge formation. (3)

4. Contaminants in the following abandoned operating and waste areas should be removed and disposed of as much as practicable, and the areas top sealed as recommended by consultants.

- a) Aniline process
- b) Trash dump
- c) NAD pond
- d) Lime pits (if required by RCRA regulations)

Plans are being formulated to properly dispose of the various inactive waste sites as required by future RCRA regulations. (3)

5. Steps should be taken promptly to finalize on a method for disposal of 300-500,000 lb. drummed waste UNT, and the disposal implemented.

Present plans call for installation of a melter system to reclaim this material in the plant process. Estimated cost - \$80,000. Estimated completion - 4th quarter, 1979. (3)

6. Prompt steps should be taken to finalize on one of the proposed methods for disposal of the approximately 60,000 tons of TDI residue, the disposal implemented, and the area top sealed if required by RCRA regulations.

A one-month trial will be conducted in September, 1978, to determine feasibility of burning TDI residue in the South Plant boilers. Initial one-day trial looked encouraging. This method would allow disposal of the residue with minimum capital investment and a substantial savings in energy costs. (

Air Pollution

ORIGINAL  
(Red)

1. Plans for development of a process to remove DNT from the SAC unit feed should be vigorously pursued, and the process installed so that the emission of about 700-1000 lb. DNT/day can be reduced to an acceptable level.

Two methods for removal of DNT from the nitration spent acid are under consideration, toluene extraction and a new DSA column. Final process route and equipment configuration should be established in 1978. Estimated cost - \$1,000,000. Estimated completion - 4th quarter, 1979. (3)

NOTE: At this time there is no official "acceptable level" for DNT emissions. It may be wrong to infer that present emissions are unacceptable. (1)

2. Planned efforts should go forward promptly to develop and install a process to remove particulates and organics from the carbon regeneration furnace emissions. Representative samples of current emissions should be analyzed to permit assessment of the organic emissions hazard so that a priority for emissions abatement can be assigned. Finally, the furnace should be relocated so that an upset is unlikely to contaminate the Pomalus unit.

A pilot scrubber unit will be installed and evaluated in September, 1978. If satisfactory, a full scale unit can be installed by 2nd quarter, 1979. Estimated cost - \$100,000.

If this approach is not acceptable, an afterburner system will be required. Estimated cost - \$200,000. Completion date - 4th quarter, 1979.

A project to segregate the carbon furnace from the adjacent Pomalus area is being scoped by SCD Engineering. (3)

# MEMO

FROM  
JON PLAUT

to E Callahan:  
re: Menckville

There is a very current  
matter. We are awaiting  
SCD triable of actions which  
Callahan is preparing the  
week. Worker exposure committee  
met this week (with Shapiro, Ferguson,  
Chern, Townsend, etc. in attendance).  
H. Robinson indicates Worker report  
will be made final at time of SCD  
triable review.

JPLaut  
8/25

ALLIED CHEMICAL CORPORATION

MEMORANDUM

ORIGINAL  
(Red)

TO: MR. J. PLAUT 8/29/78

FROM: H. J. ROBINSON

SUBJECT: TOLUENEDIISOCYANATE (TDI)  
Recommendations for Control of  
Human Health and Environmental  
Hazards  
Moundsville TDI Plant

Thank you for your memorandum of August 21 on the above subject. Before issuing Dr. Wohler's report in its final form, I shall wait another week for comments on the draft.

Although Dr. Wohlers' visit to Moundsville was in response to the TDI Task Force request, I believe some of his observations may call for action promptly. I, too, look forward to Mr. Glen Clark's report in order that sound decisions and actions may be taken as required.

cc J. B. Charm  
G. L. Clark  
W. S. Ferguson  
✓ T. D. Kent  
G. Loewengart  
D. M. Shapiro  
A. H. Sutton

HJR - 3411

8/28

Henry Robinson

Light fixture 7 1000 watt -  
+ 100 - WF 3 watts @ 10  
+ 100 - 74 in. Mercury

ORIGINAL  
(Red)

went to Henderson by 10:00 8/11 (one @  
out to me by 5:00 - may be out to 5:00 P.  
DNT (aka Kippen)  
- 5:29. pm  
no, didn't  
3:40  
quick

Draft apt condenser ops  
would be sent for comment

On Fri - 8/25 - Alan Clark with to review  
Mark W's apt - steps to be in within

HR → more memo to S.O. - he's senior  
man - doesn't want to sit on problem

with memo GOS - 24 months  
with memo

ALLIED CHEMICAL CORPORATION

MEMORANDUM

ORIGINAL  
(Red)

August 21, 1978

To: H. J. Robinson

Subject: Recommendations for Control of Human  
Health and Environmental Hazards -  
Moundsville TDI Plant

As a result of our meeting on the above subject with Glen Clark and Division personnel, I understand that consideration of various matters with input from technical expertise will be organized by SCD on a prompt timetable.

I am giving Corporate and SCD attendees to the meeting a copy of this memorandum. I am also supplying a copy of Dr. Wohlers' memorandum and draft report of August 11, along with the cover memorandum of the same date, to Mr. Kent as he may wish to input into the process as well.

*J. Plaut*  
J. Plaut

JP/ds

cc: J. B. Charm  
G. Clark  
W. S. Ferguson  
→ T. D. Kent  
D. M. Shapiro  
A. H. Sutton  
H. J. Wohlers

8/23

Tom:

Harry Robinson and I both believe that you may be interested in getting a timetable on the programs also. Would you discuss with me?

*J. Plaut*

cc. H. J. Robinson

ALLIED CHEMICAL CORPORATION

MEMORANDUM

August 21, 1978

ORIGINAL  
(Red)

To: H. J. Robinson

Subject: Recommendations for Control of Human  
Health and Environmental Hazards -  
Moundsville TDI Plant

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I am giving Corporate and SCD attendees to the meeting a copy of this memorandum. I am also supplying a copy of Dr. Wohlers' memorandum and draft report of August 11, along with the cover memorandum of the same date, to Mr. Kent as he may wish to input into the process as well.

  
J. Plaut

JP/ds

cc: J. B. Charm  
G. Clark  
W. S. Ferguson  
T. D. Kent  
D. M. Shapiro  
A. H. Sutton  
H. J. Wohlers

ALLIED CHEMICAL CORPORATION

MEMORANDUM

ORIGINAL  
(Red)

August 11, 1978

Dr. H. J. Robinson

Recommendations for Control of Human  
Health and Environmental Hazards -  
Moundsville TDI Plant

This will confirm discussion with you and Dr. Loewengart regarding subject recommendations requested by the TDI Task Force.

1. It is believed that ~~urgent health and environmental problems that exist at certain of the recommendations be implemented immediately.~~ These are marked with an asterisk in the attached draft.

2. Dr. Loewengart and I have discussed the urgent recommendations with J. E. Stansfield, G. K. Ryan, and D. M. Shapiro of SCD, and S. P. Schwartz of the Task Force. We concluded that ~~essentially all of these recommendations are in the Division's plans.~~

3. Because of the serious nature of some of the problems, it is suggested ~~that consideration be given to bringing them to the attention of corporate management, and to review of action taken on them.~~

4. ~~The attached draft will be sent for comment to the various Divisional and Corporate personnel whose inputs are the basis of the recommendations. It will then be reviewed and appropriate from the comments, and issued to the Task Force for action.~~

*H. C. Wohlers*  
H. C. Wohlers

/lyn

Attachment

cc: J. E. Stansfield  
G. Loewengart  
S. P. Schwartz  
J. Plaut  
G. K. Ryan  
D. M. Shapiro

ALLIED CHEMICAL CORPORATION

MEMORANDUM

D R A F T

August 11, 1978

ORIGINAL  
(Red)

D. S. Hamilton  
J. M. Hutchins  
G. Loewengart  
J. M. Quinn  
B. J. Samuels  
S. P. Schwartz  
C. D. Smith  
J. E. Stansfield  
C. J. Timken

Recommendations for Control  
of Human Health & Environmental Hazards  
Moundsville TDI Plant

As requested, subject attached recommendations have been prepared as inputs for TDI Task Force consideration and, as appropriate, for determination of related capital and operating expense.

H. C. Wohlers

/lyn

Attachment

cc: D. M. Aviado  
M. A. Friedman  
H. J. Robinson

Recommendations for  
Control of Human Health & Environmental Hazards  
Moundville TDI Plant

---

ORIGINAL  
(Red)

General

1. *minimize*  
The maintenance effort should be increased substantially. This will help eliminate many of the [existing] hazards from leaks, deteriorated insulation, too frequent opening of equipment to clear plugging, and similar problems.

2. Medical Services should select a competent outside occupational health specialist to review annual physical examination records of TDI plant employees for the purpose of

- determining whether test results indicate potential health problems with any particular group, and
- determining whether test procedures are adequate in quality and scope.

Appropriate action should be taken on any problems that are uncovered. Example: initiate additional DNT biological monitoring if a DNT - related health problem is indicated.

3. Corporate Occupational Health should select an epidemiologist to determine whether a retrospective morbidity/mortality study of TDI employees is feasible and, if so, to conduct the study.

Human Health

DNT

Background summary:

- DNT is moderately toxic in acute exposure, and has serious chronic effects on the testes and liver.

-It is a mutagen, and a weak animal carcinogen  
-The basis of the present ACGIH TWA of 1.5 mg/m<sup>3</sup> does not include carcinogenicity findings, and recent chronic toxicity data.

ORIGINAL  
(Red)

1. DNT metabolism studies are needed to  
-determine whether simple biological monitoring (i.e., urine metabolite determinations) is practical to identify overexposure cases, and  
-determine whether animal metabolism leading to cancer is similar to that in humans.

With this objective and with industry cooperation, the CIIT DNT metabolism studies should be reviewed by Medical Affairs, and extended if necessary to meet the foregoing objectives. Note: A TDI industry group, with Allied represented by Mr. Ferguson, is working with CIIT on applicability of CIIT DNT metabolism studies to industry problems.

2. DNT reproduction and teratology studies should be undertaken with industry cooperation to determine whether these are significant hazards to male and female employees.

This should include review and appropriate use of current CIIT work on sperm morphology and dominant lethal effects. Responsibility - Medical Affairs.

3. Medical Affairs recommends that the DNT TWA should be reduced to 0.07 mg/m<sup>3</sup> (0.009 ppm) on the basis of recent animal carcinogenicity data. To <sup>help</sup> attain the TWA, the following changes should be among those made in the DNT unit:

- a) DNT leaks should be promptly repaired, DNT - saturated insulation replaced, and frequency of plugging reduced by improved steam tracing and by other appropriate piping changes.

Not  
sufficient

Ferguson  
0.009

Big  
drop  
21

21  
7 130  
140  
10

ORIGINAL  
(Red)

- b) Washdown drains should be renovated, DNT -  
saturated flooring sealed, and flooring renovated  
to provide secure foundations for process  
equipment.
- c) The replacement of packed seals on wash  
columns with mechanical seals should be  
promptly completed.
- d) Spot ventilation on the neutralization sump and  
other open equipment should be installed
- e) Improved building ventilation should be  
installed.
- f) Present lab bench and ineffective hood  
should be replaced with a work area completely  
within a fume hood.

4. Personnel in the DNT area should wear rubber footwear,  
and gloves when hand contact is possible. Respirators should  
be worn in areas in which the <sup>actual ppm</sup> recommended TWA has not been  
attained.

5. Existing plans should be promptly implemented to  
notify DNT personnel of the <sup>potential</sup> carcinogenicity hazard and  
consequent protective measures.

TDA

Background summary:

- TDA is fairly toxic in acute exposure; chronic  
exposure can cause severe liver damage.
- It is a mutagen and an animal carcinogen.  
Induction of carcinogenicity in animals by  
skin exposure is unclear.
- There is no ACGIH TWA standard.

ORIGINAL  
(Red)

1. TDA metabolic studies are needed to
  - determine if human metabolites are similar to those in animals in which TDA has been found carcinogenic.
  - identify a human metabolite that will permit biological monitoring of overexposure.

With this in mind, current Medical Affairs metabolite studies should be vigorously pursued.

2. A TDA skin exposure carcinogenicity study should be undertaken with an animal species having a metabolic process similar to that of humans. The study should preferably be undertaken as a cooperative TDI industry effort. Responsibility: Medical Affairs.

3. TDA reproduction and teratology studies should be undertaken with industry cooperation to determine whether there are significant hazards to male and female employees. Responsibility: Medical Affairs.

4. Medical Affairs recommends that a TWA of 0.05 mg/m<sup>3</sup> (0.01 ppm), equivalent on a molar basis to the proposed DNT TWA, should be established. Currently, wearing of respirators and rubber foot protection in the filter areas should be effectively enforced, as well as wearing of suitable gloves when skin contact is possible.

5. To reduce exposure, the following changes should be made in the plant:

- a) Current efforts should be vigorously pursued to develop a simpler filtration process with much reduced potential for leakage and spillage. A greatly improved process is mandatory for effective

reduction of exposure. Alternatively, the process should be run with more active catalyst so as to reduce or eliminate filtration.

ORIGINAL  
(Red)

- b) Insulation, sizing and steam tracing of piping should be improved to reduce frequency of plugging with resultant spillage and leakage.

### Phosgene

#### Background summary:

-Phosgene has very high acute toxicity. Release of a large amount in a populated area would result in high mortality.

-Long term low level animal exposure data are lacking for assessment of chronic effects and carcinogenicity.

1. To reduce effects of a catastrophic rupture, use of present storage tanks containing about 200,000 lb. phosgene should be discontinued and the smaller "off specification" tanks used for phosgene storage. These tanks should be contained within a diked and vapor tight shroud connected to a caustic scrubber for disposal of any released phosgene.

2. Use of the large chlorine weigh tanks should be discontinued and a less hazardous alternative used for process feed.

## TDI

### Background summary:

(Red)

- TDI is highly toxic in acute exposure.
- Chronic exposure causes serious pulmonary sensitization in susceptible persons. It is unclear whether sensitization is caused by long term low level exposure, or short periods of exposure to relatively high concentrations.
- The ACGIH has proposed a reduction in the TDI TWA from 0.02<sup>0</sup> to 0.002 ppm in 1980. NIOSH has proposed a reduction to 0.003 ppm.

1. Defective and inadequate insulation should be replaced to help eliminate plugging and resultant releases believed responsible for development of pulmonary sensitization.
2. In the belief that an ACGIH TLV of 0.002 ppm for TDI will be adopted for 1980, expenditures should be planned to permit reduction of average air concentrations to this level.

## MDA

### Background summary:

- MDA is moderately toxic in acute exposure.
- Severe liver damage can result from chronic exposure to low levels.
- Recent evidence indicates that MDA has little or no human carcinogenic potential. As a result, the ACGIH has removed it from its carcinogen list and assigned a proposed TWA of 0.1 ppm.

1. MDA reproduction and tetatology studies should be undertaken with industry cooperation to determine whether there are significant hazards to male and female employees and *custo* Responsibility: Medical Affairs.

2. The recently developed Buffalo Research Laboratory analytical method for MDA in air (vapor and particulates) should be promptly verified in the field and adequate personal and area monitoring undertaken in the MDA unit to determine whether the proposed ACGIH TLV of 0.1 ppm is being met. In the interim, necessary action should be taken to insure that packout operators wear respirators during operations.

Control Laboratory

1. Weighings and other DNT and TDA operations conducted outside a hood should be transferred to a hood. Present inadequate air flow in hoods used for DNT and TDA work should be corrected.

Environmental Hazards

1. The following steps should be taken to assess the hazard of the existing DNT discharge to the Ohio in view of its human carcinogenicity potential.

- a) Determine DNT content of sediments below the outfall, and of at least 5 fish species, 5 samples of each.
- b) Assess bioconcentration potential from the octanol/water partition coefficient and biodegradation rate. Determine bioconcentration factor if bioconcentration potential is significant. Responsibility: Medical Affairs.
- c) Assess chronic toxicity hazard to fish by running a partial life cycle test with one species. Assess hazard to macroinvertebrates by running a chronic toxicity test. Responsibility: Medical Affairs.

ORIGINAL  
100

2. The following basic tests should be run for a preliminary assessment of the environmental hazards of TDA and MDA (principally for spill hazard assessment).

Responsibility: Medical Affairs.

- a) 96 hr LC<sub>50</sub> fresh water fish species
- b) 48 hr LC<sub>50</sub> daphnids
- c) Octanol/water partition coefficient (MDA only)
- d) BOD<sub>5</sub>/COD ratio

Additional testing should be undertaken if results indicate that either material represents a serious hazard.

3. Provision should be made to reduce organic contaminants in the wastewater outfall in anticipation of the 1983 effective date of the toxic pollutants provisions of the 1977 Clean Water Act Amendments. Suggested reductions:

1984  
5307  
4/9/12

- a) Dichlorobenzenes from a maximum of 11 ppm (NPDES permit data) to 0.7 ppm. The 0.7 ppm value is based on 10x the draft water quality criterion of 70 ppb.
- b) Dinitrotoluene from a maximum of 22 ppm to nondetectable in the expectation that carcinogenicity evidence will result in setting the discharge limit to below the nondetectable level. Most of the DNT is thought to originate from DNT plant waste drains; recommendations for reducing DNT leaks, etc., should reduce the effluent DNT content substantially.

4. Consideration of halting North Plant Ranney well pumping (e.g., as a result of halting TDI plant operations) should involve the following:

- a) Assurance that continued pumping of the South Plant wells will avoid contamination of the Washington Lands and Moundsville Country Club wells by organics from the North Plant aquifer.
- b) Determination of the amounts of organics that will enter the Ohio River after top sealing the contamination sources, and obtaining permits from appropriate regulatory agencies for the resulting discharges.

5. An adequate diversion pond should be constructed to contain organic spills and to permit inspection and repair of the equalization pond.

6. Plans to comply with eventual provisions of the spill hazard section of the 1977 Clean Water Act Amendments should include determination of whether present diking will contain ruptures occurring above dike levels. In some of the existing tank-dike systems, a rupture well above dike level will result in the spill stream clearing the dike top.

#### Solid Waste

1. Planned efforts should go forward promptly to develop methods to remove and stabilize solids in the inorganic and formaldehyde treatment waste ponds. Plans should be made for acceptable disposal of the solids. These recommendations are made in the belief that the actions will be required by RCRA rules.

2. Planned efforts should go forward promptly to develop and operate a process for compaction of TDA - formaldehyde process wastes as produced, including a method for acceptable disposal. The formaldehyde waste and black water ponds should then be properly sealed and abandoned.

ORIGINAL  
1888

3. Planned efforts should go forward promptly to develop a process and operate for compaction/ stabilization of the inorganic waste treatment unit sludge as produced, including an acceptable long term method for disposal.

4. Contaminants in the following abandoned operating and waste areas should be removed and disposed of as much as practicable, and the areas top sealed as recommended by consultants.

- a) Aniline process
- b) Trash dump
- c) NAD pond
- d) Lime pits (if required by RCRA regulations)

5. Steps should be taken promptly to finalize on a method for disposal of 300-500,000 lb. drummed waste DNT, and the disposal implemented.

6. Prompt steps should be taken to finalize on one of the proposed methods for disposal of the approximately 60,000 tons of TDI residue, the disposal implemented, and the area top sealed if required by RCRA regulations.

#### Air Pollution

1. Plans for development of a process to remove DNT from the SAC unit feed should be vigorously pursued, and the process installed so that the emission of about 700-1000 lb. DNT/day can be reduced to an acceptable level.

2. Planned efforts should go forward promptly to develop and install a process to remove particulates and organics from the carbon regeneration furnace emissions. Representative samples of current emissions should be analyzed to permit assessment of the organic emissions hazard so that a priority

6/1/61  
(Rec)

for emissions abatement can be assigned. Finally, the  
furnace should be relocated so that an upset is unlikely to  
contaminate the Pomalus unit.

# ALLIED CHEMICAL CORPORATION

## MEMORANDUM

August 15, 1978

To: Dr. H. J. Robinson

Subject: Internal TWA Exposure Limits for DNT and TDA

I refer to Dr. Loewengart's calculations dated August 14, 1978 for internal TWA exposure limits for DNT and TDA. Dr. Loewengart has adopted a safety factor of 1,000 based on the no observed effect level and recommends that it be implemented as an internal Allied control. This calculation is common and appropriate in establishing tolerances for non-intentional food additives or for pesticide residues under FDA/EPA protocols. It is unduly restrictive when applied to healthy workers, age 18-65, under appropriate medical surveillance. Safety factors applying under these conditions are more often in the range of 10 to 100. Where human exposure effect information exists, safety factors may even be less than 10 (e.g., mercury vapor which has a safety factor of approximately 4). I therefore question whether as a matter of legal consistency we wish to adopt such a restrictive posture with these two particular materials.

Bearing in mind that the real concern regarding TDA and DNT relates to their carcinogenicity in rodents, and not withstanding our scepticism regarding the relevance of rodent liver or mammary tumors to human risk, if we wish to control carcinogenic properties, I would suggest a totally different calculation method as follows: it is generally conceded that .1 mg per cubic meter of dust or mist, or 1 ppm of organic vapor is "virtually safe". This would lead directly to a benchmark recommendation for each of these materials of 1 ppm (v/v) with the understanding that we would continue to drive exposures down to as low a level as is realistically achievable. We should of course continue to be aware that skin absorption may be a more significant route of exposure than vapor inhalation.

WSF  
Warren S. Ferguson

WSF:yw

cc: G. Loewengart  
M. A. Friedman  
A. Sutton  
R. H. Sand  
~~\_\_\_\_\_~~  
J. Plaut

ALLIED CHEMICAL CORPORATION  
MEMORANDUM

ORIGINAL  
(Red)

August 21, 1978

TO: J. B. Charm      K. G. Gould  
K. H. Ferber      G. L. Loewengart  
W. S. Ferguson      A. F. Ritardi

FROM: D. M. Shapiro

RE: MEETING TO FORMULATE INDUSTRIAL HYGIENE  
GUIDELINES FOR DNT AND TDA

to  
Kurt  
to  
note

DATE: Monday, August 28, 1978

TIME: 1:30 PM

PLACE: Core Conference Room 4A

*Dale M. Shapiro*

Dale M. Shapiro

DMS..tmm

cc: G. L. Clark  
J. Plaut  
H. J. Robinson  
A. H. Sutton

RECEIVED APR 30 1980

New File

ORIGINAL  
(Red)

DRAFT

MDG  
Environmental  
Reviews

To J. Muelly.

Subject: Environmental Review - Houndville Plant - January, 1979

An environmental review was held at the Houndville Plant on January 28 and 31, 1979. The review team was W. F. Blank, Corporate Environmental Manager; W. F. Porter, SCD Environmental Engineer; and J. S. Greenland, SCD Environmental Service. We were assisted in the plant by W. S. Taylor, D. L. Brown, and D. Knowles.

Our general findings are listed below. In addition, a more detailed program for solid waste is attached.

A South Plant

1) The caustic and a storage building are located on firm foundations and

revenue team that the condition of the construction storage tanks presents a serious present environmental threat.

2) The containment projects committed to US EPA in 1977 should be ~~completed~~ reviewed and completed.

3) The project is to install a new water building throughout line should be installed.

4) Containment should be installed at the caustic truck loading area.

5) An abnormal emissions control ~~must~~ containment plan should be prepared for the South Plant.

6) A permit application should be submitted to W. Va. D. N. R. for the package ~~containing~~ waste water treatment plant.

7) The status of the septic tank ~~should~~ should be reviewed with W. Va. D. N. R.

8) The plant is performing the analysis of waste water for mercury for the EPA approved procedure. It would like to use a shorter, more reliable method and it would like to develop the data needed to obtain approval from EPA for the revised method.

9) The analysis for cyanide is done about once a month using an EPA approved method.

10) Occasionally there are deviations from the sample type required by the NPDES permit. If because of high water at the outfall a grab sample might be taken instead of a 24 hour composite sample. When this happens it should be <sup>noted</sup> indicated in the <sup>report</sup> and the monitoring report.

11) The maintenance department has been working for keeping records on the maintenance of monitoring equipment should be maintained.

To ensure that they are in compliance with

EPA procedures.

(12) An updated sewer map should be

~~drawn. (See item 11)~~

(13) Areas containing hazardous materials should be added to contour areas and properly

labeled.

(14) The Federal Regulations on pollutant should be reviewed as they apply to the

sewerage system and to reporting requirements for maintenance and housekeeping

## 6 North Plant

1) Burns containing hazardous materials should be stored in contained areas and properly labeled.

2) The DNT drums should be covered and properly labeled to a more secure location.

with the with H.C.C.

3) The registration of emissions for the

carbon furnace should be updated.

current operating conditions.

4) The installation of pollution control equipment on the carbon furnace.

process property.

5) The practice of collecting dust.

in an open chamber and disposing of them at the plant dump should be

- 6) The gasoline storage tank at the ~~original~~ treatment plant should be relocated ~~inside~~ the contained area.
- 7) The diesel oil storage tank near ~~the~~ <sup>NO</sup> should have additional secondary ~~containment~~ installed.
- 8) Housekeeping at Bldg 52 (TDA ~~problem~~) should be improved to ensure ~~that~~ <sup>NO</sup> TDA contaminated water gets outside the contained area.
- 9) The hydrogen compressor (~~is~~ <sup>airbed</sup> outside the Bldg 52 ~~contained area~~ <sup>should</sup> be contained to prevent oil leaks ~~from~~ entering the sewer system.
- 10) <sup>NO</sup> Containment at the incinerator ~~should~~ to be upgraded.

# Social Welfare Action Plan.

South West

Fond Number  
(Identify location)

Description

Action

1 Unknown settling basin

Construct pond - action against water

2 Unknown settling basin

Construct pond - action against water

3 Mercury surge pond

Remove pond - action against water. Construct pond - action against water. Necessary.

4 Unknown settling basin

Remove pond - action against water. Construct pond - action against water.

5 New Clarification pond

Construct pond - action against water. Construct pond - action against water. Construct pond - action against water. Construct pond - action against water.

6, 7, 8, 9, 10 Mercury treatment ponds

Remove pond - action against water. Construct pond - action against water. Construct pond - action against water. Construct pond - action against water.

11

Free water bond

No action required

Track file

Presently in use - determine  
use before July 1951

Old chemical dump

Inspected - no action  
required in 1950

Key and setting bond

Action bond - no action  
recommended in 1950  
or not under way  
by 1951

# Solid Waste Action Plan North Plant.

Pool Number (Plant identification)	Description	Action
12	NHD Pond	Inspect, maintain equipment in good condition
13	Formaldehyde treatment Pond	Remove pond in 1978 without in 1978 disposal of waste
14	EPDM Pond	Empty of contents in 1978 disposal of waste
15	Fire water pond	No action required
16	Outfall 004 pond	No action required
17	Waste treatment plant - equalization basin	Inspect, maintain all equipment disposal of waste action required
18	Waste treatment plant settling basin	Inspect, maintain all equipment disposal of waste Stabilize sludge 1978.

ORIGINAL  
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unauthorized change in  
Raymond's (now  
left)

19

line. Bedo

inaction - no action  
required in 1978.  
That line is returning  
it is a Raymond's  
(now Lincoln County)

PNT drums

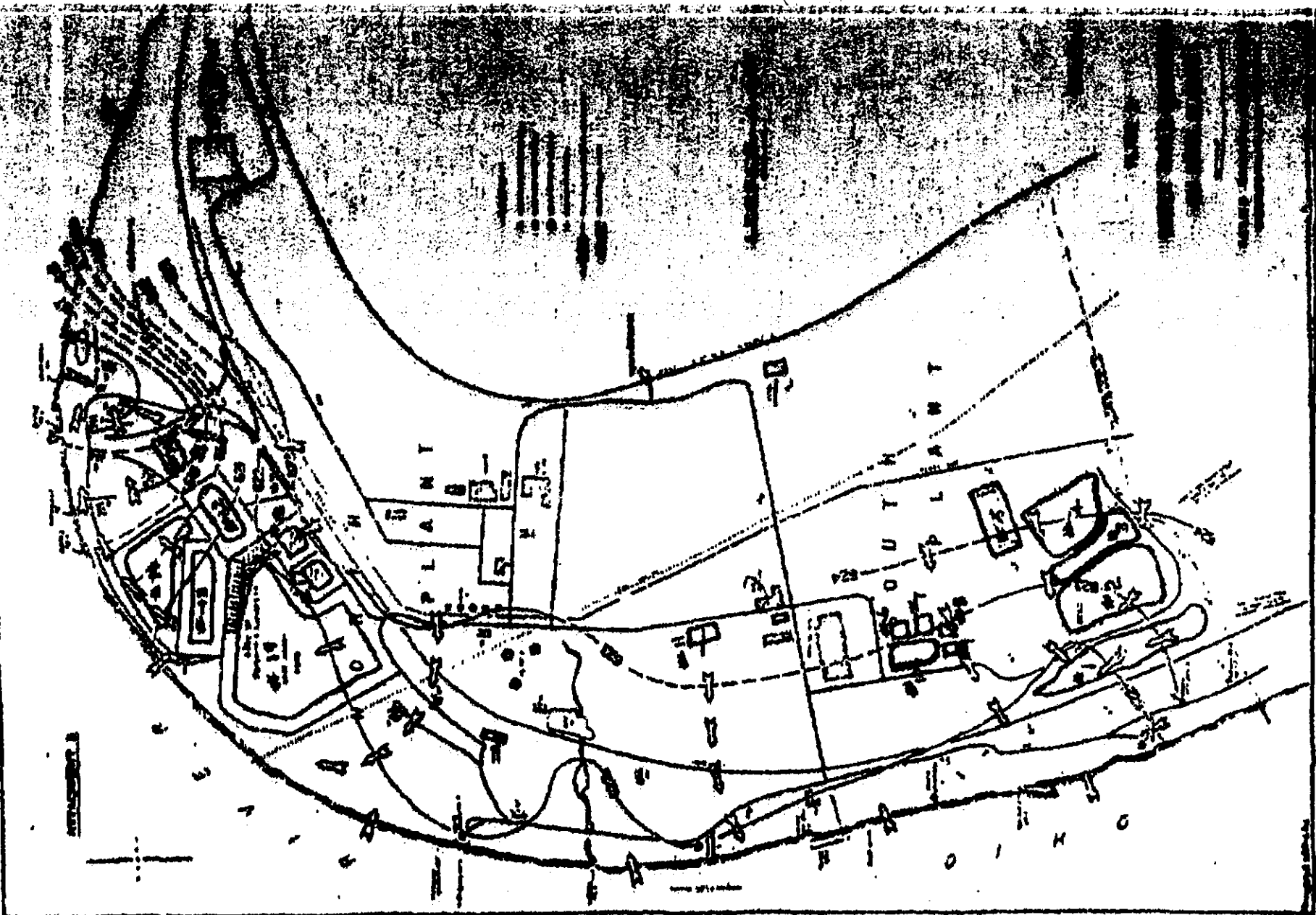
a) Cover and return  
drums for a  
area.

b) Install  
and return

Tread Pile-down

Presently in use  
are light  
separate  
fold off - all  
cover down  
discontinued

TDI residue



ORIGINAL  
(Red)

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(Red)

SCD Environmental Audit Protocol  
and Report

Audit Team:  
(Signatures and Date)

L. Sobel 3/15/77

R. L. Lantieri 3/15/77

S. Van Epps 3/15/77

E. J. P. 3/15 3/15 3/15

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

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February, 1977

SCD Environmental Audit Protocol

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Supplementary Information Provided

NRDC "Toxic Chemicals" List	15a
USEPA Approved Monitoring Procedures (40 CFR 136)	34a
USEPA Guidelines for Oil SPCC Plans (40 CFR 113.7)	43a
USEPA Proposed "Hazardous" Chemicals List (40 CFR 116 & 118)	51a

February, 1977



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(Red)

# Environmental Policy

The purpose of this statement is to reaffirm the policy of Allied Chemical, which has been effective since 1967, with regard to protection of the environment. It is the policy of Allied Chemical:

- ☐ To take all practicable measures necessary to prevent or abate air and water pollution resulting from its operation.
- ☐ To insure that qualified personnel, with clearly defined responsibilities and commensurate authority, are assigned to bring and keep pollution under control.
- ☐ To cooperate fully with governmental agencies charged with pollution control.
- ☐ In plant communities, to cooperate with municipal governments in pollution abatement.
- ☐ To seek to extend scientific and technical competence in pollution control at all levels within the company.
- ☐ To conduct appropriate research and engineering investigations in air and water quality control, and to encourage such research by others outside the company.
- ☐ To contribute to the development of sound, equitable and realistic standards, laws and ordinances regarding pollution.
- ☐ To participate with other companies, organizations and the public in efforts to prevent and eliminate pollution.
- ☐ To inform employees and the public of progress in the company's anti-pollution efforts.
- ☐ To maintain close liaison with organizations engaged in pollution abatement, with a view toward improving the company's anti-pollution program.

It is the obligation of every employee of the Corporation to adhere to the spirit as well as the letter of this policy.

John T. Connor  
Chairman

Robert E. Mulcahy  
President

June 1976

SCD Environmental Audit ProtocolInitial  
(Red)Part A - General Information

1. Plant Moundsville (North)
2. Date(s) of Audit March 15, 16 + 17, 1977
3. Auditors R. L. Fawcett N. E. Stewart (Observer)  
E. J. Shields \_\_\_\_\_  
R. Sobel \_\_\_\_\_  
G. D. Van Epps \_\_\_\_\_
4. Plant Address Route No. 2  
Drawer "E"  
Moundsville, West Va. 26041
5. Plant Telephone No. 304-845-5670
6. Plant Manager Charles A. Raymond
7. Environmental Staff T. Hennis, L. W. Jannett  
 (other than analytical) D. G. Kramer, W. T. Murphy
8. Receiving Waters Ohio River River Mile 105  
 Water Quality Classification - <sup>(A)</sup>Uses: A, B1, B2, B3, C, D + E  
 Source of Classification West Virginia Administrative Regs. - 1974
9. Nature of surrounding area (urban, suburban, rural, etc.)  
Rural
10. Plant Census: Hourly 235 Salaried 176 (Total) - in combination with South Pl.
11. Year in which Works began operations: 1952

(A) Uses: A - Water Contact Recreation  
 B1 - Public Water Supply  
 B2 - Industrial Water Supply  
 B3 - Agricultural Water Supply  
 C - Propagation of Aquatic Life  
 D - Water Transport, Cooling + Power  
 E - Treated Wastes, Transport and Assimilation

SCD Environmental Audit Protocol

Part A - General Information

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(Red)

12. Products (all - but do not list individual blends, strengths, etc. separately) and typical annual production of each in net tons:

Pomulys @ 4,700 Tons

TDA-80 34,400 Tons

Naccenal 80 33,450 Tons

Naccenal 5050 700 Tons

Naccenal ES-1 515 Tons

MDA Flake 340 Tons

13. By-products and typical annual production of each in net tons:

HCP 32% Solution 97,800 Tons

14. Intermediates and typical annual production of each in net tons:

DNT 80 54,250 Tons

Hydrogen 2,100 Tons

Naccenal 5060 750 Tons

Phosgene 45,950 Tons

Carbon Monoxide 14,350 Tons

SCD Environmental Audit ProtocolPart A - General Information

15. Raw Materials and typical annual consumption of each in net tons:

<u>Malic Anhydride</u>	<u>3,900 Tons</u>	<u>Sassafras</u>	<u>0 Tons</u>
<u>Nitric Acid 98%</u>	<u>41,295 Tons</u>	<u>Chlorine</u>	<u>33,542 Tons</u>
<u>Toluene</u>	<u>28,700 Tons</u>	<u>Natural Gas</u>	<u>523,063,000 Cu. Ft.</u>
<u>Soda Ash</u>	<u>271 Tons</u>		
<u>Sulfuric Acid 93%</u>	<u>1,630 Tons</u>		
<u>Dichlorobenzene</u>	<u>307 Tons</u>		
<u>Vananol</u>	<u>167 Tons</u>		
<u>Formaldehyde</u>	<u>195 Tons</u>		
<u>Aniline Oil</u>	<u>450 Tons</u>		
<u>Caustic</u>	<u>225 Tons</u>		
<u>HCl</u>	<u>660 Tons</u>		
<u>Congo</u>	<u>0 Tons</u>		
<u>Triethylamine</u>	<u>0 Tons</u>		

16. Catalysts and typical annual consumption of each in net tons:

See TSCA Listing  
Dated February 7, 1977

17. Additives, treating agents and other chemicals used in plant (excluding lab) - indicate typical annual usage in net tons:

See TSCA Listing  
Dated February 7, 1977

## SCD Environmental Audit Protocol

### Part B - Plant Administration Review

Rating Levels: 1 - Excellent    2 - Good    3 - Fair    4 - Poor

<u>Item</u>	<u>Rating</u>	<u>Remarks</u>
★ 1. <u>Plant Appearance</u>		
a. Housekeeping	1 2 3 ④	- Consideration given to extensive construction in progress.
b. Painting	1 2 ③ 4	
c. Landscaping	1 ② 3 4	
d. Overall Impression	1 2 ③ 4	
2. <u>Plant Security</u>		
a. Forced Entry	1 2 ③ 4	
b. Accidental Entry	1 ② 3 4	
★ 3. <u>Environmental Library</u>		
a. Federal Regulations	1 ② 3 4	- Recommend obtaining Code of Fed. Regs. - Title 40
b. State Regulations	1 ② 3 4	- Recommend obtaining current Admin. Regulation.
c. Local Regulations	1 2 3 4	- Not Applicable
★ 4. <u>Environmental Files</u> (other than analytical & monitoring)		
a. General Completeness	1 ② 3 4	- Files need improvement.
b. General Orderliness	1 2 ③ 4	
c. Internal Correspondence	1 2 ③ 4	
d. Reports of Regulatory Agency Inspections	1 ② 3 4	

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SCD Environmental Audit Protocol

Part B - Plant Administration Review (Cont'd)

<u>Item</u>	<u>Rating</u>	<u>Remarks</u>
* 5. <u>Environmental Training</u>		
a. Process Training of Operators	1 2 ③ 4	Evaluation by Plant Environmental Staff
b. Environ. Training of Operators & Mechanics	1 2 3 ④	Evaluation by Plant Environmental Staff
- Spill prevention & response?		
- Formal training sessions?		
- New operators?		
- Regularly updated?		
c. Environ. Training of Supervisors	1 2 ③ 4	Evaluation by Plant Environmental Staff
6. <u>Public Relations</u>		
a. Display of Corporate Environ. Policy Statement	1 ② 3 4	
b. Participation in trade and environmental associations	1 2 ③ 4	Membership good, participation limited
c. Participation in local civic groups and functions	1 2 ③ 4	
d. Response to complaints from neighbors	1 2 ③ 4	Phone response only
e. Contacts with local regulatory agency staffs	1 ② 3 4	

① Allotted Time and Review Team personnel were inadequate to permit interviews necessary to make an independent judgement on these matters.

SCD Environmental Audit Protocol  
Part B - Plant Administration Review (Cont'd)

7. Environmental Staffing

a. <u>Name</u>	<u>Formal Education</u>	<u>Total Industrial Experience (Yrs)</u>	<u>Environmental Experience (Yrs)</u>	<u>Special Environmental Training</u>
T. (Ted) Harris	B.S. Ch.E.	31	6	None
L.W. (Les) Jancott	No College Level	38	4	None
D.G. (Dale) Kneave	B.A. Chem. Eng.	26	1/2	None
W.T. (Pat) Murphy	B.S. Ch.E.	12	1	None

<u>Item</u>	<u>Rating</u>	<u>Remarks</u>
b. Adequacy (number and ability)	1 2 ③ 4	- Number adequate, experience and special training inadequate
c. Reporting Relationships	1 2 ③ 4	

★ d. Comments Special Training of at least one person in stack monitoring needed.  
Enviro. staff has problem in effectively communicating with other departments.

8. Communications with Divisional Environmental staff (including prior clearance of all contacts with regulatory agencies originated by Works)

1 ② 3 4

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SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review

Section 1 - NPDES Permit

- a. Permit Number WV 0004412  
b. Issuing Agency USEPA Region III  
c. Certifying Agency (if any) West Va. Div. of Water Resources (DNR)  
d. Enforcement Agency or Agencies USEPA Region III

- e. Effective Date January 17, 1975  
f. Expiration Date January 17, 1980  
g. Was the permit adjudicated? YES

If yes - indicate:

Date requested 1/16/75 Stipulation signed by Allied? YES Date 4/1

Still open issues (if any) None - Stipulation completely signed  
OFF.

Amended permit received YES Date March 8, 1977 (Date  
Amendment issued)

- h. Current Outfalls:

<u>Outfall No.</u>	<u>Description (Major Component Streams)</u>
<u>001</u>	<u>Combined with 003 on 9/1/76. Stream</u> <u>water from TDI plant plus various TDI</u> <u>process wastes and once-thru cooling water &amp; JET.</u>
<u>002</u>	<u>JETs from Ponds @ process and once-thru</u> <u>cooling water.</u>
<u>003</u>	<u>Lime Treated and settled acid wastes from</u> <u>SAC unit, DNT, TDI, and caustic scrubbers.</u>

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

i. Appearance and physical characteristics of current outfalls:

<u>Outfall No.</u>	<u>Wastewater Stream (Oil, Scum, Odor, Color, Solids, High Temperature, Etc.)</u>
--------------------	---

001 - Flooded (underwater) by high level (28.5 ft.) in  
river

002 - Minor overflow at upstream pH monitoring station.

Heist cleaning contractor removed oil retained by boom  
during oil spill which occurred during night of 3/14/77. No oil  
reached river. Effluent clear and not significantly colored.

003 - Dark amber effluent, some residual foam (anti-  
foaming agent used)

Comments: Signs posted at river's edge identifying all  
three outfalls.

j. Appearance of surrounding shore area (current outfalls):

<u>Outfall No.</u>	<u>Shore Appearance (Debris, Scum, Vegetation, Etc.)</u>
--------------------	--

001 - Rocks, grass; area clean

002 - Natural appearance, area generally clean

003 - Vegetation - trees, no debris or deposits.

★ Comments: Area immediately above outfall<sup>003</sup> littered with  
paper and trash blown from nearby dump.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

- k. Appearance of Receiving Waters (Oil, Scum, Color, Solids, Floating Debris, Etc.) \_\_\_\_\_

001 - No evidence of discharge in river

002 - No evidence of discharge in river

003 - Slight amber color in immediate area of discharge

- l. Outfalls planned upon completion of NPDES compliance program

Outfall No.\*

Description (Major Component Streams)

001 - Treated process water

002 - "Clean" cooling water from both MDN & MDI, plus  
uncontaminated storm water drainage from both plants.

003 - "Clean" cooling water & storm water run-off from MDN

004 - "Clean" storm water run-off from MDN

NOTE: "Clean" cooling water is once-thru, non-circulating

- m. Excursion history since permit issuance (daily max. & daily avg.)

<u>Parameter</u>	<u>Excursions (number)</u>	
	<u>Daily Max.</u>	<u>Daily Avg.</u>
<u>pH</u>	<u>102</u>	<u>          </u>
<u>BOD<sub>5</sub></u>	<u>5</u>	<u>1</u>
<u>Cr<sub>6</sub></u>	<u>4</u>	<u>          </u>
<u>          </u>	<u>          </u>	<u>          </u>
<u>          </u>	<u>          </u>	<u>          </u>
<u>          </u>	<u>          </u>	<u>          </u>

\* The numbering of these outfalls was changed subsequent to the environmental review.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 1 - NPDES Permit (Cont'd)

(inv.)

- k. Appearance of Receiving Waters (Oil, Scum, Color, Solids, Floating Debris, Etc.) \_\_\_\_\_

001 - No evidence of discharge in river

002 - No evidence of discharge in river

003 - Slight amber color in immediate area of discharge

- l. Outfalls planned upon completion of NPDES compliance program

Outfall No.\*

Description (Major Component Streams)

001 - Treated process water

002 - Non-contact cooling water from both MDN + MDS, plus

uncontaminated steam water drainage from both plants.

003 - Non-contact cooling water + steam water run-off from MDN

004 - Non-contact steam water run-off from MDN

NOTE: "Clean" cooling water is once-through, non-contact

- m. Excursion history since permit issuance (daily max. & daily avg.)

<u>Parameter</u>	<u>Excursions (number)</u>	
	<u>Daily Max.</u>	<u>Daily Avg.</u>
<u>pH</u>	<u>102</u>	<u>          </u>
<u>BOD5</u>	<u>5</u>	<u>1</u>
<u>Ca+M</u>	<u>4</u>	<u>          </u>
<u>          </u>	<u>          </u>	<u>          </u>
<u>          </u>	<u>          </u>	<u>          </u>
<u>          </u>	<u>          </u>	<u>          </u>

\* The numbering of these outfalls was changed subsequent to the environmental review.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 1 - NPDES Permit (Cont'd)

- n. Are all daily maximum excursions reported as required by permit?

Yes If no - why? Comment: Five Days allowed by permit  
For Agency Notification. Still is met 90% of time. Occasional  
miss Five Day Limit searching for cause. No weekend lab coverage.

What corrective actions (as appropriate) are planned? OK

- o. Has the USEPA taken any enforcement action (including letters)?

Yes

If yes, give details as follows:

<u>Date of Action</u>	<u>Nature</u>	<u>Response Date</u>	<u>Current Status</u>
4/24/75	Admin. Order	5/2/75	Closed
"74-466 OK"			
Order noted 15 violations of 1.0 - 12.0 pH limit. Explanation			
of continuing problem and plan to correct submitted			
To EPA. Permit pH limits are now 3.0 - 10.0 for each outfall.			
Continuous pH monitoring of 003 & 005/01 & 006 of 001 and 002			
now required. Round-the-clock hourly surveillance started 1/77. Excursion			
frequency reduced.			

- p. Compliance Program Progress Reports submitted as required by permit:

Yes

If no - discuss discrepancies and planned corrective measures (as appropriate):

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

n. Are all daily maximum excursions reported as required by permit?

Yes If no - why? Comment: Five Days allowed by permit  
for Agency notification. This is met 90% of time. Occasional  
may miss Five Day Limit reaching for cause. No weekend lab coverage

What corrective actions (as appropriate) are planned? \_\_\_\_\_

o. Has the USEPA taken any enforcement action (including letters)?

Yes

If yes, give details as follows:

<u>Date of Action</u>	<u>Nature</u>	<u>Response Date</u>	<u>Current Status</u>
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<u>4/24/75</u>	<u>Admin. Order</u>	<u>5/2/75</u>	<u>Closed</u>
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# 74-466

Order noted 15 alleged violations of 1.0 - 12.0 pH limit. Explanation  
of continuing problem and plan to correct submitted  
to EPA. Permit pH limits are now 3.0 - 10.0 for each outfall.  
Continuous pH monitoring as per 40 CFR 122.41(a) and 122.42  
now required. Permit-to-discharge hourly surveillance started 1/77. Excursion  
frequent reduced.

p. Compliance Program Progress Reports submitted as required by permit?

Yes

If no - discuss discrepancies and planned corrective measures (as appropriate): \_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

ORIGINAL  
10/1/77

- q. Compliance program milestone dates missed or anticipated to be missed:

<u>Milestone</u>	<u>Permit</u>	<u>Dates</u> <u>Actual</u>	<u>Agency Notified</u>
Complete Construction of Organic Treatment System	4/1/77	5/30/77 (Anticipated)	1/14/77 Progress Report

NOTE: IT IS STILL ANTICIPATED THAT THE OPERATIONAL COMPLIANCE DATE OF 7/1/77 WILL BE MET.

Corrective measures (as appropriate) planned and/or taken:

Pond Installation Construction (Sewage) working 11 hrs./day, 6 days/week to make up lost time.

- r. Are all discharges to a waterbody, including those which flow only in wet weather, registered as outfalls? No

If not - give details OUTFALL (004) CONTAINING STEAM WATER RUN-OFF FROM B/D, 100 (WHISK), ALSO WASHING FROM B/D, 100, AND SEPTIC TANK OVERFLOW IS NOT REGISTERED. THE OUTFALL ALSO CONTAINS STEAM RUN-OFF FROM PLANTING EAST OF PLANT.

Corrective measures (as appropriate) planned EPA + W.U.D.W.R. ADVISED BY LETTER OF 1/27/77 WHICH REQUESTED PERMIT MODIFICATION TO ESTABLISH 004 AS CLEAN WATER OUTFALL. PLANT PROPOSES TO plug SEPTIC TANK OVERFLOW (to remove sanitary waste by tank) and to go to a day warehouse system.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

(100)

- q. Compliance program milestone dates missed or anticipated to be missed:

<u>Milestone</u>	<u>Permit</u>	<u>Dates</u>	<u>Agency Notified</u>
		<u>Actual</u>	
Complete Construction of Organic Treatment System	4/1/77	5/30/77 (Anticipated)	1/14/77 Progress Report

NOTE: IT IS STILL ANTICIPATED THAT THE OPERATIONAL COMPLIANCE DATE OF 7/1/77 WILL BE MET.

Corrective measures (as appropriate) planned and/or taken:

POND INSTALLATION CONTINUING (Savage) working 11 hrs./day, 6 days/week to make up lost time.

- r. Are all discharges to a waterbody, including those which flow only in wet weather, registered as outfalls? NO

If not - give details OUTFALL (004) CONTAINING STEAM WATER RUN-OFF FROM B/Dy. 100 (WHISK.), PLANT WASHINGS FROM B/Dy. 100, AND SEPTIC TANK OVERFLOW IS NOT REGISTERED. THE OUTFALL ALSO CONTAINS STEAM RUN-OFF FROM THERMINS EAST OF PLANT.

Corrective measures (as appropriate) planned EPA + W.U.D.W.R. ADVISED BY LETTER OF 1/27/77 WHICH REQUESTED PERMIT MODIFICATION TO ESTABLISH 004 AS NON-CONTACT COOLING WATER AND STEAMWATER RUN-OFF OUTFALL. PLANT PROPOSES TO plug SEPTIC TANK OVERFLOW (+ remove sanitary wastes by truck) and TO go TO a day warehouse system.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

s. Have all outfalls been characterized regarding their pollutant loading? YES - Except for 004

If no - why? Due to intermittent flow, Outfall 004 was not known to exist when outfalls were characterized for May-June, 1991 RAP application and May-June, 1992 Renewal

\* Planned corrective actions (as appropriate): (1) Expedite removal of wastewater and sanitary waste contaminants from system, (2) Sample outfall when flowing during storm. Analyze for BOD<sub>5</sub>, COD, TOC, pH, fecal coliform and fecal streptococci.

t. Do wastewaters from adjoining properties flow into our sewer systems? No If yes - do they pose an actual or potential non-compliance problem? (discuss, including feasibility of elimination)

No industrial neighbors except South Plant.

u. Are products made and production capacities given in COE or NPDES permit application still correct? No

If no - give details: Most recent application (11/30/92) lists Aniline, maleic, fumaric, fumarate and TDI. Aniline, maleic and fumaric are no longer made. Methylene Diamine listed in attachment only.

TDI capacity	210,000 PPD Listed	vs	210,000 PPD Current
MDA capacity	5,500 PPD Listed	vs	5,500 PPD Current
Fumarate capacity	55,000 PPD Listed	vs	90,000 PPD Current

Intermediate products & by-product HCl levels are probably off in the same proportion as TDI production.

## SCD Environmental Audit Protocol

ORIGINAL

## Part C - Water Pollution Control Program Review (Cont'd)

## Section 1 - NPDES Permit (Cont'd)

u. (Cont'd)

Has the NPDES permit issuing agency been notified? Not FullyIf no - why not? Oversight due to incremental nature of most production capacity increases.

★ Planned corrective action (as appropriate): USEPA Region III and West Va. Dept. of Natural Resources will be provided with a current list of products & production capacity  
note: (This was done by letter dated June 1, 1977).

v. Does current data indicate that any parameter levels in discharge are higher than shown in COE or NPDES permit application? YesIf yes - give details: Possibly higher - Total Solids, Dissolved Solids and Zinc. Probably higher - Chloride + sodium, CHCl<sub>3</sub> - CCl<sub>4</sub>

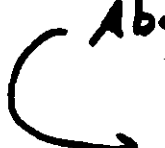
now found and not previously listed under Chlor. Hydrocarbons in application. Compounds listed in 2/1/77 TSCA Inventory List as ext. water not shown in application.

Has NPDES permit issuing agency been notified? Not FullyIf no - why not? Definitive data unavailable. EPA III formally notified of estimated CHCl<sub>3</sub> + CCl<sub>4</sub> discharges in November 24, 1976 "308" response. (See <sup>①</sup> below)Planned corrective action (as appropriate): Treated process

★ effluent will be fully characterized, and amended permit application data submitted after new treatment facilities are fully operational.

① High chloride levels discussed in letters to EPA III (copies to WUDNR) dated Jan. 30, 1976 and Oct. 24, 1977.

About 1 year prior



## SCD Environmental Audit Protocol

ORIGINAL

## Part C - Water Pollution Control Program Review (Cont'd)

## Section 1 - NPDES Permit (Cont'd)

u. (Cont'd)

Has the NPDES permit issuing agency been notified? Not FullyIf no - why not? Overnight due to incremental nature of most production capacity increases.

\* Planned corrective action (as appropriate): USEPA Region III and West Va. Dept. of Natural Resources will be provided with a current list of products & production capacity.  
NOTE: This was done by letter dated June 1, 1977.

v. Does current data indicate that any parameter levels in discharge are higher than shown in COE or NPDES permit application? Yes

If yes - give details: Possibly higher - Total Solids, Dissolved Solids and Zinc. Probably higher - Chloride & sodium. CHCl<sub>3</sub> + CCl<sub>4</sub> now found and not previously listed under Chlor. Hydrocarbons in application. <sup>②</sup> Compounds listed in 2/1/77 TSCA Inventory List as either water not shown in application.

Has NPDES permit issuing agency been notified? Not Fully

If no - why not? Definitive Data unavailable. EPA III formally notified of estimated CHCl<sub>3</sub> + CCl<sub>4</sub> discharges in November 24, 1976 "308" response. <sup>①</sup> (See below)

Planned corrective action (as appropriate): Treated process

\* effluent will be fully characterized, and amended permit application data submitted after new treatment facilities are fully operational.

① High chloride levels discussed in letters to EPA III (copies to WVDNR) dated Jan. 30, 1976 and Oct. 24, 1977.

② Subsequent notifications to USEPA of CCl<sub>4</sub> + CHCl<sub>3</sub> discharges summarized and confirmed by March 11, 1977 letter to Region

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd) ORIGINAL  
(Red)Section 1 - NPDES Permit (Cont'd)

- w. Are there any modifications of the permit which have been, or should be, requested? Yes

If yes - describe and give status: Letter of 1/27/77 from G.A. Raymond to N.A. Cassens (EPA) and R.L. Cunningham (USDOH) requested modifications establishing three additional clean water outfalls.

- x. Are any of the following chemicals known to be present (found using plant's current analytical capabilities), or believed to be present, in the wastewater discharge? No

If yes - indicate loading ranges in ppm and PPD.

Benizidine \_\_\_\_\_

Aldrin/Dieldrin \_\_\_\_\_

Endrin \_\_\_\_\_

Toxaphene \_\_\_\_\_

Polychlorinated Biphenyls (PCB) \_\_\_\_\_

DDT, DDD & DDE \_\_\_\_\_

What actions (as appropriate) to eliminate them from our discharge

★ are underway or planned? Indoor Transformers will be checked for possible use of PCBs. (Outside Transformers have been checked and do not contain PCBs)

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)ORIGINAL  
(Red)Section 1 - NPDES Permit (Cont'd)

- w. Are there any modifications of the permit which have been, or should be, requested? Yes

If yes - describe and give status: Letter of 1/23/77 from C.A. Raymond to N.A. Cassens (EPA) and A.C. Cunningham (WVOWR) requested modifications establishing three additional so-called "clean water" outfalls.

- x. Are any of the following chemicals known to be present (found using plant's current analytical capabilities), or believed to be present, in the wastewater discharge? No

If yes - indicate loading ranges in ppm and PPD.

Benzidine \_\_\_\_\_

Aldrin/Dieldrin \_\_\_\_\_

Endrin \_\_\_\_\_

Toxaphene \_\_\_\_\_

Polychlorinated Biphenyls (PCB) \_\_\_\_\_

DDT, DDD & DDE \_\_\_\_\_

What actions (as appropriate) to eliminate them from our discharge

★ are underway or planned? Inside Tanks/Furnaces will be checked for possible use of PCBs. (Outside Tanks/Furnaces have been checked and do not contain PCBs).

ORIGINAL  
(Red)SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 1 - NPDES Permit (Cont'd)

- ★ y. Are any of the NRDC "Toxic Chemicals" (see attached list, Pages 15a and 15b) known (found using plant's current analytical capabilities) believed to be present in our effluent? yes

If yes - describe loadings:

<u>Parameter</u>	<u>Conc. Range</u>	<u>PPD Range</u>	<u>Comments</u>
_____	_____	_____	<u>New priority pollutants</u>
_____	_____	_____	<u>List of 123 compounds</u>
_____	_____	_____	<u>will be checked by pl</u>
_____	_____	_____	<u>against TSCA list.</u>
_____	_____	_____	<u>Capability of analyzing</u>
_____	_____	_____	<u>unknowns for these</u>
_____	_____	_____	<u>priority pollutants which</u>
_____	_____	_____	<u>may be present will be</u>
_____	_____	_____	<u>investigated.</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

- z. Have NPDES compliance/surveillance inspections been made by the USEPA, State or local agencies? yes If yes - list:

<u>Agency</u>	<u>Date(s)</u>	<u>Significant Discrepancies Found</u>	<u>Corrective Measures Taken</u>
<u>EPA III</u>	<u>7/86</u>	<u>Flow measurements inadequate - Flow meters installed</u>	
<u>Whiting Field Office</u>		<u>Relocate 002 and 003</u>	<u>- Done</u>
		<u>Monitoring stations to include</u>	
		<u>Stream water ditch flow</u>	

<u>Compound</u>	<u>Compound</u>	<u>ORIGINAL (Red)</u>
001 Acenaphthene	027 Cyanides	
002 Acetone	028 DDT and metabolites	
003 Acrolein	029 Dialkyl ethers	
004 Acrylonitrile	030 Dibenzofuran	
005 Aldrin/Dieldrin	031 Dichlorobenzenes (1,2-, 1,3-, and 1,4-dichlorobenzenes)	
006 N-Alkanes (C10-C30)	032 Dichlorobenzidine	
007 Antimony and compounds*	033 Dichloroethylenes (1,1- and 1,2-dichloroethylene)	
008 Arsenic and compounds	034 2,4-dichlorophenol	
009 Asbestos	035 Dichloropropane and dichloropropene	
010 Benzene	036 2,4-dimethylphenol	
011 Benzidine	037 Dinitrotoluene	
012 Beryllium and compounds	038 Diphenyl ether	
013 Biphenyl	039 Diphenylhydrazine	
014 Cadmium and compounds	040 Endosulfan and metabolites	
015 Carbon tetrachloride	041 Endrin and metabolites	
016 Chlordane (Technical mixture and metabolites)	042 Ethylbenzene	
017 Chlorinated benzenes (Other than dichlorobenzenes)	043 Fluoranthene	
018 Chlorinated ethanes (including 1,2-dichloroethane, 1,1,1,-trichloroethane, and hexachloroethane)	044 Haloethers (other than those listed elsewhere: includes chlorophenylphenyl ethers, bromophenylphenyl ethe bis (dichloroisopropyl) bis-(chloroethoxy) methane and polychlorinated diphenyl ethers)	
019 Chlorine	045 Halomethanes (other than those listed elsewhere: includes methylene chloride methylchloride, methylbromide, bromoform, dichloro- bromomethane, trichloro- fluoromethane, dichlorodifluoromethane)	
020 Chloroalkyl ethers (chloromethyl, chloroethyl, and mixed ethers)	046 Heptachlor and metabolites	
021 Chlorinated naphthalene	047 Hexachlorobutadiene	
022 Chlorinated phenols (Other than those listed elsewhere; includes trichlorophenols and chlorinated cresols)		
023 Chloroform		
024 2-chlorophenol		
025 Chromium and compounds		
026 Copper and compounds		

\*As used throughout this list, the term "compounds" shall include organic and inorganic compounds.

ORIGINAL  
(Red)

<u>Compound</u>	<u>Compound</u>
048 Hexachlorocyclohexane (all isomers)	074 Toxaphene
049 Hexachlorocyclopentadiene	075 Trichloroethylene
050 Isophorone	076 Vinyl Chloride
051 Lead and compounds	077 Zinc and compounds
052 Mercury and compounds	
053 Methyleneethyl ketone	
054 Naphthalene	
055 Nickel and compounds	
056 Nitrites	
057 Nitrobenzene	
058 Nitrophenols (including 2,4-dinitrophenol, dinitrocresol)	
059 Nitrosamines	
060 Pentachlorophenol	
061 Phenol	
062 Phthalate esters	
063 Polychlorinated biphenyls (PCBS)	
064 Polynuclear aromatic hydro- carbons (including benzantracenes, benzopyrenes, benzofluorathene, chrysenes, dibenzanthracenes, and indenopyrenes)	
065 Secondary amines	
066 Selenium and compounds	
067 Silver and compounds	
068 Styrene	
069 Terpenes	
070 2,3,7,8,-Tetrachlorodi- benzo-p-dioxin (TCDD)	
071 Tetrachloroethylene	
072 Thallium and compounds	
073 Toluene	

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 1 - NPDES Permit (Cont'd)ORIGINAL  
(Red)

z. (Cont'd)

Were aliquots of agency samples taken? Yes

If no - why not? \_\_\_\_\_

Comments: EPA Analytical results were requested but have not yet been obtained.aa. Are there current or potential problems associated with the NPDES program which are not covered above? Not aware of any.

If yes - discuss (include any appropriate corrective measures underway or planned): \_\_\_\_\_

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'ORIGINAL  
(Red)Section 2 - State Water Pollution Control Permits

- a. What is the name, address, and phone number of the State Water Pollution Control Agency (primary contact office)?

West Virginia Dept. of Natural Resources

Division of Water Resources

100 Greenbrier St., East

Charleston, W.V. 25311

Nathan L. Cunningham + Dwight McElroy - Permits

- b. Does the State Water Pollution Control Agency require construction permits that are applicable to the plant? Yes

If yes - for what? Combined Construction, Operation  
and Discharge.

- c. Does the State Water Pollution Control Agency require operating permits that are applicable to the plant? Yes

If yes - for what? Wastewater Treatment Facilities  
Plant Records were uncertain as applicable State  
Laws and Regulations. These should be reviewed and  
appropriate working files established.

- d. List current State Water Pollution Control Permits:

Type	Permit No.	Date Issued	Expiration Date	Facility Covered
Cont./Acc.	5726	11/20/75	9/30/77	Wastewater Treat.
Temp. Treatment	5046	6/3/77	12/31/76	Formaldehyde Treatment Unit

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 2 - State Water Pollution Control PermitsORIGINAL  
(Red)

- a. What is the name, address, and phone number of the State Water Pollution Control Agency (primary contact office)?

West Virginia Dept. of Natural ResourcesDivision of Water Resources1201 Greenbaker St., EastCharleston, W. Va. 25311Robert L. Cunningham + Dir. of M&E - Permits

- b. Does the State Water Pollution Control Agency require construction permits that are applicable to the plant? Yes

If yes - for what? Combined Construction, Operation  
and Discharge.

- c. Does the State Water Pollution Control Agency require operating permits that are applicable to the plant? Yes

If yes - for what? Wastewater Treatment Facilities  
Plant Personnel were uncertain in some respects with applicable  
laws and regulations. There should be reviewed and  
appropriate working files established.

- d. List current State Water Pollution Control Permits:

Type	Permit No.	Date Issued	Expiration Date	Facility Cover
Const./Op.	5726	11/20/75	9/30/77	Wastewater Treat
Temp. Treatment	5046	6/3/74	12/31/76	Fertilizer/Orbide Treatment

ORIGINAL  
(Red)

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 2 - State Water Pollution Control Permits (Cont'd)

- e. Have all required State permits been obtained or applied for? Yes  
If not - give details including corrective actions (as appropriate) that are underway or planned: Division of Water Resources also requires a permit be issued for modification (an installation of an on-line solid waste disposal facility. Preliminary contacts have been made relative to a permit for WTS 1/2/84.
- f. Do State Water Pollution Control permits or regulations require that the Agency be notified of changes in application data such as production capacities and pollutant loadings? Yes - in that application data is considered  
If they do - is application data current and correct? Probably not  
If not - give details including corrective actions (as appropriate) that are underway or planned: State application data will be reviewed. State will be notified of any modifications or changes in application data at the same time such notification is made to the USEPA.
- g. Have there been any excursions against the State operating permit which were not also NPDES permit excursions? No  
If so, give the excursion history since permit issuance:

<u>Parameter</u>	<u>Excursions (number)</u>
_____	_____
_____	_____
_____	_____
_____	_____

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) <sup>ORIGINAL</sup>

Section 2 - State Water Pollution Control Permits (Cont'd) <sup>(Red)</sup>

- e. Have all required State permits been obtained or applied for? Yes  
 If not - give details including corrective actions (as appropriate) that are underway or planned: Division of Water Resources also requires a permit be issued for modification (an installation of an on-line solid waste disposal facility. Preliminary contacts have been made relative to a permit for waste treatment plant sludge disposal.
- f. Do State Water Pollution Control permits or regulations require that the Agency be notified of changes in application data such as production capacities and pollutant loadings? Yes - in that application, data is considered  
 If they do - is application data current and correct? May need some  
 If not - give details including corrective actions (as appropriate) that are underway or planned: State application data will be reviewed. State will be notified of any modifications or changes in application data at the same time as notification is made to the USEPA.
- g. Have there been any excursions against the State operating permit which were not also NPDES permit excursions? No  
 If so, give the excursion history since permit issuance:

<u>Parameter</u>	<u>Excursions (number)</u>
_____	_____
_____	_____
_____	_____
_____	_____

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) <sup>ORIGINAL</sup> (pad)

Section 2 - State Water Pollution Control Permits (Cont'd)

g. (Cont'd)

Were the above excursions properly reported? Not Applicable

If not - why? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective actions (as appropriate) underway or planned? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

h. Has the State taken any enforcement action (including letters? No

If yes - give details as follows:

<u>Date of Action</u>	<u>Nature</u>	<u>Response Date</u>	<u>Current Status</u>
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No action relative to permit conditions since 11/4/86.  
Action relative to spill situations are covered in  
Section 7 of Part C.

i. Does the State require submittal of effluent monitoring reports other than those required by the NPDES permit? Yes

If yes - describe Monthly report vs. State Limits

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part C - Water Pollution Control Program Review (Cont'd)

Section 2 - State Water Pollution Control Permits (Cont'd)

i. (Cont'd)

Have these reports been promptly submitted when due? Yes

If not - why? \_\_\_\_\_

Corrective actions (as appropriate) underway or planned: \_\_\_\_\_

j. Does the State require submittal of compliance program progress reports other than those required by the NPDES permit? Yes

If yes - describe Quarterly Progress Reports as stated in compliance program.

Have they been promptly submitted when due? Yes

If not - why? \_\_\_\_\_

Corrective actions (as appropriate) underway or planned: \_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

ORIGINAL  
(Red)

Section 2 - State Water Pollution Control Permits (Cont'd)

- k. Are there any other known problems or potential vulnerabilities related to State Water Pollution Control Regulations and/or permits?

Yes

If yes - describe: Possible Coliform problems. NPDES permit  
has final period coliform Limitation of 300 MPN/100 ml.  
During final period of permit (effective 7/1/77), State  
permit has a maximum Limitation of 100 MPN/100 ml.  
However, State has indicated they will consider a revision  
of this Limit based on actual performance of Coliform units.  
Corrective actions (as appropriate) underway or planned: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (ORIGINAL)

Section 3 - Municipal Wastewater Permit

N.O.T. Applicable

a. Are wastewaters discharged to a municipal waste facility? No

If yes - what facility? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. Does the municipal facility issue permits to those industrial locations discharging to it? N.A.

If yes - do we have such a municipal permit? \_\_\_\_\_

If yes - list:

<u>Permit No.</u>	<u>Date Issued</u>	<u>Date Expires</u>
_____	_____	_____
_____	_____	_____

If no - why not? - explain \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as appropriate) that are underway or planned:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

c. Do the municipal permit and municipal regulations establish discharge loading limitations? N.A.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 3 - Municipal Wastewater Permit (Cont'd)

Not Applicable

c. (Cont'd)

If yes - list:

Parameter

Limitations


d. Have we exceeded those limitations? N.A.

If yes - list the excursion history since the permit was issued or the regulations became effective.

Parameter

No. of Excursions


e. Are these excursions required to be reported? N.A. Have we reported them? N.A. If yes - list:

Parameter(s)   Date Reported   Date & Nature of Municipal Response (if


SCD Environmental Audit Protocol

ORIGINAL

Part C - Water Pollution Control Program Review (Cont'd)

Section 3 - Municipal Wastewater Permit (Cont'd)

Not Applicable

e. (Cont'd)

Indicate corrective measures (as appropriate) taken or planned:

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f. Does the municipality impose a surcharge for certain parameters above an established level? N.A. If yes - list:

<u>Parameter</u>	<u>Surcharge Rate</u>	<u>Surcharge Billed (Past 12 Months)</u>
------------------	-----------------------	--


g. What is the total billing (including surcharges) from the municipal facility for the past 12 months? N.A.

h. Do the municipal permit or the regulations contain any troublesome terms or conditions other than the discharge limitations? N.A.

If so - discuss

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SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 3 - Municipal Wastewater Permit (Cont'd)

Not Applicable

- i. Was a discharge application submitted to the municipal authority? N.  
If yes - when? \_\_\_\_\_

- j. Is the data and information submitted in the application still correct? N.A.

If not - has the municipal facility been advised the the changes?

If not - when will they be so advised (if required or appropriate)?

- k. Have we obtained a copy of the municipal facility's NPDES permit? N.  
(If not this should be done)

- l. Are there any known current or potential problems in this area other than those covered above? N.A.

If yes - discuss (include any appropriate corrective measures underway or planned): \_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 4 - Sanitary Wastes

ORIGINAL  
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- a. Are sanitary wastes disposed of other than to a municipal treatment facility? Yes

If yes - are they presently treated on-site? Yes

How? Four septic tanks and tile drainage fields. About 85% of septic tank overflow is now going thru acid/lime neutralization pit.

- b. Does the present treatment and/or disposal of sanitary wastes meet State or local regulatory requirements? No

What are these requirements? State requires equivalent of secondary treatment and does not regard septic tanks as meeting this standard.

- c. Is the treatment and/or disposal of sanitary wastes specifically covered by a permit? Yes

If yes - what permit (or permit section)? W.U.D.W.R.

Permit No. 5226 issued 11/20/75.

- d. Are any changes or improvements in the treatment of sanitary wastes planned? Yes

If yes - describe Septic Tank Discharges will be routed to Inorganic Sewer Network and new treatment facility. However, 130, 100 septic tank discharges will be plugged. It is recommended that discharges from the new water treatment facility be monitored for fecal coliform.

★

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) <sup>ORIGINAL</sup> (Red)

Section 4 - Sanitary Wastes (Cont'd)

- e. Has there been any regulatory agency enforcement actions (including letters) specifically relating to the treatment and/or disposal of sanitary wastes? No

If yes - describe as follows:

<u>Nature of Action</u>	<u>Date</u>	<u>Date of Response</u>	<u>Current Status</u>

Comments - including corrective measures (as applicable) taken, underway or planned: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- f. Are there any other known current or potential problems concerning sanitary wastes other than those covered above? Not aware of any

If yes - discuss \_\_\_\_\_

\* NOTE: Gating over sump at B/D, 100 is deteriorating and should be replaced.

Corrective actions (as applicable) underway or planned: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit ProtocolORIGINAL  
(Red)Part C - Water Pollution Control Program Review (Cont'd)Section 5 - Monitoring

a. List permit monitoring requirements currently in effect:

<u>Permit</u>	<u>Outfall(s)</u>	<u>Parameter</u>	<u>Sampling Freq.</u>	<u>Sample Type</u>
NPDES	002	pH & Flow <sup>(1)</sup>	1/Day	Grab
WV0004413	003	Flow <sup>(1)</sup>	1/Day	Grab
	003	pH <sup>(1)</sup>	Continuous	Recor'd
	002+003	TOC	1/Day	24 hr Comp.
		CO <sub>2</sub> <sup>(1)</sup>	2/week	"
		BOD <sub>5</sub> <sup>(1)</sup>	2/week	"
		TSS <sup>(1)</sup>	2/week	"
		TKN	2/week	"
		NH <sub>3</sub> -N <sup>(1)</sup>	2/week	"
		Ca Total <sup>(1)</sup>	2/week	"
		Ca+Mg <sup>(1)</sup>	2/week	"
WV0004413	002+003	Phosphorus	1/week	24 hr Comp.
#525		Hy <sup>(1)</sup>	1/week	"
		TDS	1/week	"
		Phenol	1/week	"
		Colo (Tripartite)	1/week	"
	001	Not in use except to handle storm water overflow from combined 001 + 003 sewer system.		

NOTE: (1) Current Reg'd NPDES Parameter

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd) ORIGINAL  
(Red)Section 5 - Monitoring (Cont'd)

- b. Are all NPDES, State and municipal permit parameters being monitored as prescribed by the permits? Yes

List exceptions since effective date of permit:

<u>Permit</u>	<u>Outfall(s)</u>	<u>Parameter</u>	<u>No. of Exceptions</u>	<u>Reported to Agency (how)</u>
---------------	-------------------	------------------	--------------------------	---------------------------------

Not Applicable

Corrective measures (as applicable) taken, underway, or planned:

- c. How is flow currently measured?

<u>Outfall</u>	<u>Means of Measurement</u>	<u>Estimated Accuracy</u>
<u>002</u>	<u>Parshall Flume</u>	<u>± 5%</u>
<u>003</u>	<u>Parshall Flume</u>	<u>± 5%</u>

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 5 - Monitoring (Cont'd)

d. Are flow measuring devices properly located? Yes

If not - discuss \_\_\_\_\_

Corrective measures (as applicable) underway or planned: \_\_\_\_\_

e. Are the flow measuring devices periodically calibrated? No

If yes - complete the following:

<u>Outfall</u>	<u>Device</u>	<u>Last Calibrated</u>	<u>Record Maintained?</u>
002	Panball Flow	8/76	No
003	Panball Flow	8/76	No

If no - describe an appropriate program:

<u>Outfall</u>	<u>Device</u>	<u>Type of Calibration</u>	<u>Frequency</u>
002	Panball Flow	Dilatation Flow	
003	Panball Flow	Dilatation Flow	

★ Treated process water outfall (new 001 after 7/1/77) should be calibrated every six months and a record maintained. The clean water outfalls should be calibrated every 12 months if the flow is measured to be measured.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 5 - Monitoring (Cont'd)f. Are the flow measuring devices adequately maintained? YesAre maintenance records kept? NoDoes the supply of spare parts seem adequate? Not Applicable

\* Comments: The flame flares and the stilling chamber  
because the flame should be kept clean of  
deposited dirt.

Corrective actions (as applicable): None other than  
that mentioned above.

g. How are composite samples taken?

<u>Outfall</u>	<u>Sampling Device</u>	<u>Proportional to Flow?</u>
<u>002</u>	<u>Brillford Sampling Pump</u>	<u>- No</u>
<u>003</u>	<u>Brillford Sampling Pump</u>	<u>- No</u>

h. Are the composite sampling devices adequately maintained? YesAre maintenance records kept? NoDoes the supply of spare parts seem adequate? Yes

Comments: Trick Filters changed twice/week  
Pumps cleaned + greased once/week

Corrective actions (as applicable): None

SCD Environmental Audit ProtocolORIGINAL  
(Red)Part C - Water Pollution Control Program Review (Cont'd)Section 5 - Monitoring (Cont'd)

- i. Are the composite sampling devices properly located?
- Yes

If not - discuss \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Is the housekeeping at the sampling station satisfactory? YesComments: The bank above the outfall 003 discharge point was littered with paper trash apparently blown there from the nearby uncovered dump.\* Corrective actions (as applicable): Road around the road above outfall 003 should be cleaned up.  
(Same as Item J - Page 8)

- j. If pH and/or
- ~~temperature~~
- are checked continuously, are the instruments in good condition?
- Yes
- Maintenance records kept?
- Yes
- 
- Periodically calibrated?
- Yes
- (Temp. not monitored)

If yes - complete:

<u>Outfall</u>	<u>Device</u>	<u>Last Calibrated</u>	<u>Calibration Records?</u>	<u>Maintenance Records?</u>
<u>002</u>	<u>pH</u>	<u>2/15/77</u>	<u>Yes</u>	<u>Yes</u>
<u>003</u>	<u>pH</u>	<u>2/15/77</u>	<u>Yes</u>	<u>Yes</u>

If no - comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 5 - Monitoring (Cont'd)

- k. Are there effluent monitoring stations other than those at the outfalls? Yes

If yes - list:

<u>Station Location</u>	<u>Parameters Monitored</u>	<u>Sample Type</u>	<u>Sample Frequency</u>
<u>Outfall 002 Weir</u>	<u>pH</u>	<u>Continuous - Record</u>	
<u>Outfall 003 Ditch</u>	<u>pH</u>	<u>Continuous - Record</u>	
<u>Outfall 003 - Outlet</u>	<u>pH</u>	<u>Continuous - Record</u>	
<u>#1 Pond</u>			
<u>Outfall 003 - Outlet</u>	<u>pH</u>	<u>Continuous - Record</u>	
<u>Neutralization P.T.</u>			

If no, or if judged inadequate, list any recommended additional monitoring:

<u>Station Location</u>	<u>Parameters Monitored</u>	<u>Sample Type</u>	<u>Sample Frequency</u>
<u>Not Applicable</u>			

1. Are the wetted surfaces of sample collecting devices made of suitable materials? No

Comments (including any recommended changes): Polyethylene

\* Collection Containers for continuous samples are unsatisfactory for many organic pollutants. Suggest 6 1/2 gallon glass carboys with polyethylene covers be considered. Use of Teflon tubing in pumps may be incompatible with some organic pollutants.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 5 - Monitoring (Cont'd)

- m. Are sampling containers made of suitable materials? Are they clean and well marked? Yes to both questions.

\* Comments (including any recommended changes): French square glass bottles (approx. 1 pint) used now for each sample and then discarded. Cap liner is aluminum with cardboard backing. This could pose a problem with so highly acid or alkaline effluents.

- n. Are the EPA-approved analytical procedures listed in 40 CFR 136 as amended (effective 4/1/77) by 41 FR 52780-86, 12/1/76 used for all permit monitoring purposes? (See list of approved procedures on Pages 34a-34e).

<u>Permit Parameter</u>	<u>EPA Procedure Used (Reference &amp; Page)</u>
* $\text{NH}_3$ (as N)	1974 EPA Method, Page 155
COD	STD. Method, 14 <sup>th</sup> ed. Page 550
* $\text{Cl}^-$	STD. Method, 14 <sup>th</sup> ed. Page 302
Colia	STD. Method, 14 <sup>th</sup> ed. Page 66
pH	1974 EPA Method, Page 175
* Kjeld. N (as N)	1974 EPA Method, Page 175
* TOC	1974 EPA Method, Page 235
* Phenols	STD. Method, 14 <sup>th</sup> ed. Page 534
* Phosphorus	1974 EPA Method, Page 247
* Total Solids	1974 EPA Method, Page 220
TSS	1974 EPA Method, Page 268
* Spec. Cond.	STD. Method, 14 <sup>th</sup> ed. Page 71

\* Required only for STATE - NOT NPDES permit parameters

# § 136.2 Definitions.

(f) "Standard Methods" means *Standard Methods for the Examination of Water and Waste Water*, 14th Edition, 1976. This publication is available from the American Public Health Association, 1015 18th Street, N.W., Washington, D.C. 20036.

(g) "ASTM" means *Annual Book of Standards, Part 31, Water*, 1975. This publication is available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

(h) "EPA Methods" means *Methods for Chemical Analysis of Water and Waste, 1974. Methods Development and Quality Assurance Research Laboratory*.

National Environmental Research Center, Cincinnati, Ohio 45268; U.S. Environmental Protection Agency, Office of Technology Transfer, Industrial Environmental Research Laboratory, Cincinnati, Ohio 45268. This publication is available from the Office of Technology Transfer.

TABLE I.—List of approved test procedures<sup>1</sup>

Parameter and units	Method	1974 EPA methods	14th ed. standard methods	References (page nos.)		Other approved methods
				Pt. 31 1976 methods ASTM	USEPA 1976 methods ASTM	
1. Acidity, as CaCO <sub>3</sub> , milligrams per liter.	Electrometric end point (pH of 4.2) or phenolphthalein end point.	1	273(4.3)	116	49	1(1047)
2. Alkalinity, as CaCO <sub>3</sub> , milligrams per liter.	Electrometric titration (only to pH 4.2) manual or automated, or equivalent automated methods.	3	276	111	61	1(1047)
3. Ammonia (as N), milligrams per liter.	Manual distillation <sup>2</sup> (at pH 9.2) followed by nesslerization, titration, electrode, Automated phenolate.	159	413	227	116	1(1047)
<b>BACTERIA</b>						
4. Coliform (faecal) <sup>3</sup> , number per 100 ml.	MPN; <sup>4</sup> membrane filter.			323		
5. Coliform (faecal) <sup>3</sup> in presence of chlorine, number per 100 ml.	do. <sup>4</sup>			367		1(48)
6. Coliform (total) <sup>3</sup> , number per 100 ml.	do. <sup>4</sup>			323		
7. Coliform (total) <sup>3</sup> in presence of chlorine, number per 100 ml.	MPN; <sup>4</sup> membrane filter with enrichment.			323		1(48)
8. Fecal streptococci, <sup>5</sup> number per 100 ml.	MPN; <sup>4</sup> membrane filter; plate count.			343		1(48)
9. Resazurin, milligrams per liter.	Oxidation—colorimetric <sup>6</sup> .			344		
10. Biochemical oxygen demand, 5-d (BOD <sub>5</sub> ), milligrams per liter.	Winkler (Azide modification) or electrode method.			345		1(48)
11. Bromide, milligrams per liter.	Titrimetric, iodine-iodate.	14		328	58	
12. Chemical oxygen demand (COD), milligrams per liter.	Dichromate reflux.	20	250	472	124	1(107)
13. Chloride, milligrams per liter.	Silver nitrate mercuric nitrate, or automated colorimetric-mercurimetric.	20	250	472	124	1(107)

See footnotes at end of table.

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Parameter and units	Method	1979 EPA methods	14th ed. standard methods	Reference (page nos.)		Other approved methods
				Pt. 21 1973 ASTM	USGS methods <sup>1</sup>	
14. Chlorinated organic compounds (except pesticides), milligrams per liter.	Gas chromatography <sup>12</sup>					
15. Chlorine—total residual, milligrams per liter.	Iodometric titration, amperometric or starch-iodine end-point; DPD colorimetric or titrimetric methods (these last 3 are interim methods pending laboratory testing).	35	319		278	
16. Color, platinum cobalt units or dominant wave length, nan, luminance, purity.	Colorimetric spectrophotometric or ADMI procedure. <sup>13</sup>	25	94		93	
17. Cyanide, total, <sup>14</sup> milligrams per liter.	Distillation followed by silver nitrate titration or pyridine-pyrazolone (or barbituric acid) colorimetric.	48	361	349	94	(122)
18. Cyanide amenable to chlorination, milligrams per liter.	do.	49	370	350		
19. Dissolved oxygen, milligrams per liter.	Winkler (Azide modification) or electrode method.	51	442	389	126	(100)
20. Fluoride, milligrams per liter.	Distillation <sup>15</sup> followed by ion electrode, SPADNS, or automated complexation.	52	394	355	95	
21. Hardness—Total, as CaCO <sub>3</sub> , milligrams per liter.	EDTA titration; automated colorimetric or atomic absorption (sum of Ca and Mg as their respective carbonates).	53	395	356	96	(102)
22. Hydrogen ion (pH), pH units.	Electrometric measurement.	59	459	178	130	(106)
23. Nitrate nitrogen (as N), milligrams per liter.	Digestion and distillation followed by nesslerization, titration, or electrode; automated digestion automated phenazine.	179	457	132		(112)
24. Nitrate—Total, milligrams per liter.	Digestion <sup>16</sup> followed by atomic absorption <sup>17</sup> or by colorimetric (Diazotization-Cyanine B).	58	393			(107)
25. Nitrate—Dissolved, milligrams per liter.	0.45 micron filtration <sup>18</sup> followed by reduced method for total nitrate.					
26. Nitrite—Total, milligrams per liter.	Digestion <sup>19</sup> followed by atomic absorption. <sup>20</sup>	54				
27. Nitrite—Dissolved, milligrams per liter.	0.45 micron filtration <sup>21</sup> followed by reduced method for total nitrite.					
28. Arsenic—Total, milligrams per liter.	Digestion <sup>22</sup> followed by silver diethyldithiocarbamate or atomic absorption. <sup>23</sup>	5	399			(108)
29. Arsenic—Dissolved, milligrams per liter.	0.45 micron filtration <sup>24</sup> followed by reduced method for total arsenic.					(109)
30. Barium—Total, milligrams per liter.	Digestion <sup>25</sup> followed by atomic absorption. <sup>26</sup>	57	188		98	
31. Barium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>27</sup> followed by reduced method for total barium.					
32. Beryllium—Total, milligrams per liter.	Digestion <sup>28</sup> followed by atomic absorption <sup>29</sup> or by colorimetric (Aluminon).	59	189		99	
33. Beryllium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>30</sup> followed by reduced method for total beryllium.					
34. Boron—Total, milligrams per liter.	Colorimetric (Cresolphthalein).	15	209			
35. Boron—Dissolved, milligrams per liter.	0.45 micron filtration <sup>31</sup> followed by reduced method for total boron.					
36. Cadmium—Total, milligrams per liter.	Digestion <sup>32</sup> followed by atomic absorption <sup>33</sup> or by colorimetric (Dimethylglyoxime).	188	140	345		(110) (111)
37. Cadmium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>34</sup> followed by reduced method for total cadmium.					
38. Cadmium—Total, milligrams per liter.	Digestion <sup>35</sup> followed by atomic absorption or EDTA titration.	189	140	346	99	
39. Cadmium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>36</sup> followed by reduced method for total cadmium.					
40. Chromium VI, milligrams per liter.	Extraction and atomic absorption; colorimetric (Diphenylpicrylhydrazol).	30, 186			70	
41. Chromium VI—Dissolved, milligrams per liter.	0.45 micron filtration <sup>37</sup> followed by reduced method for chromium VI.					
42. Chromium—Total, milligrams per liter.	Digestion <sup>38</sup> followed by atomic absorption <sup>39</sup> or by colorimetric (Diphenylpicrylhydrazol).	189	140	347	71	(112)
43. Chromium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>40</sup> followed by reduced method for total chromium.					

See footnote at end of table.

ORIGINAL  
(Red)

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Parameter and units	Method	Reference			
		1973 EPA approved methods	1973 USGS methods	1973 methods, APTM	Other approved methods
41. Cobalt—Total, milligrams per liter.	Digestion is followed by atomic absorption.	107	148	345	86
42. Cobalt—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
43. Copper—Total, milligrams per liter.	Digestion is followed by atomic absorption or by colorimetric (Neocupressin).	108	148	345	86 + (899) + (87)
44. Copper—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
45. Gold—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
46. Iridium—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
47. Iron—Total, milligrams per liter.	Digestion is followed by atomic absorption or by colorimetric (Phenanthroline).	128	148	345	105
48. Iron—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
49. Magnesium—Total, milligrams per liter.	Digestion is followed by atomic absorption or by colorimetric (Murexide).	129	148	345	105
50. Magnesium—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
51. Manganese—Total, milligrams per liter.	Digestion is followed by atomic absorption or by colorimetric (Periodate).	110	148	345	105
52. Manganese—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
53. Mercury—Total, milligrams per liter.	Digestion is followed by atomic absorption or by colorimetric (Dimethylmercury).				
54. Mercury—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
55. Molybdenum—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
56. Molybdenum—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
57. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption or by colorimetric (Dimethylglyoxime).	130	148	345	105
58. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
59. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
60. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
61. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
62. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
63. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
64. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
65. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
66. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
67. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
68. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
69. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
70. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
71. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
72. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
73. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
74. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
75. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
76. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
77. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
78. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				
79. Nickel—Total, milligrams per liter.	Digestion is followed by atomic absorption.				
80. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration is followed by reduced method.				

See footnote at end of table.

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(Red)

Parameter and units	Method	1974 EPA methods	14th ed. Standard methods	References (page nos.)		Other approved methods
				Pt. 11 ASTM	USGS 1973 methods	
76. Thallium—Total, milligrams per liter.	Digestion <sup>1</sup> followed by atomic absorption. <sup>16</sup>	148				
76. Thallium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>17</sup> followed by referenced method for total thallium.					
80. Tin—Total, milligrams per liter.	Digestion <sup>18</sup> followed by atomic absorption. <sup>18</sup>	150			" (68)	
81. Tin—Dissolved, milligrams per liter.	0.45 micron filtration <sup>17</sup> followed by referenced method for total tin.					
82. Titanium—Total, milligrams per liter.	Digestion <sup>18</sup> followed by atomic absorption. <sup>18</sup>	151				
82. Titanium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>17</sup> followed by referenced method for total titanium.					
84. Vanadium—Total, milligrams per liter.	Digestion <sup>18</sup> followed by atomic absorption <sup>18</sup> or by colorimetric (Guthrie acid).	153	153 200	441	" (57)	
84. Vanadium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>17</sup> followed by referenced method for total vanadium.					
86. Zinc—Total, milligrams per liter.	Digestion <sup>18</sup> followed by atomic absorption <sup>18</sup> or by colorimetric (dithionite).	155	148 205	345	150 <sup>1</sup> (619) <sup>18</sup> (27)	
87. Zinc—Dissolved, milligrams per liter.	0.45 micron filtration <sup>17</sup> followed by referenced method for total zinc.					
88. Nitrate (as N), milligrams per liter.	Cadmium reduction; bromine sulfate; automated cadmium or hydrazine reduction. <sup>19</sup>	201 197 207	423 427 520	355	119 <sup>1</sup> (614) <sup>18</sup> (28)	
89. Nitrate (as N), milligrams per liter.	Manual or automated colorimetric (Diazotization).	215	434		131	
90. Oil and grease, milligrams per liter.	Liquid-liquid extraction with trichlorotrifluoroethane-gravimetric.	220	515			
91. Organic carbon; total (TOC), milligrams per liter.	Combustion—Infrared method. <sup>20</sup>	226 <sup>1</sup>	532	467	" (4)	
92. Organic nitrogen (as N), milligrams per liter.	Kjeldahl nitrogen minus ammoniacal nitrogen.	175, 189	497		122 <sup>1</sup> (612, 614)	
93. Orthophosphate (as P), milligrams per liter.	Manual or automated ascorbic acid reduction.	249	481	364	131 <sup>1</sup> (623)	
94. Pentachlorophenol, milligrams per liter.	Gas chromatography <sup>21</sup>	255	624			
95. Pesticides, milligrams per liter.	.....do. <sup>22</sup>		555	520	" (24)	
96. Phenols, milligrams per liter.	Colorimetric, (4AAP).	261	582	545		
97. Phosphorus (elemental), milligrams per liter.	Gas chromatography <sup>23</sup>					
98. Phosphorus; total (as P), milligrams per liter.	Persulfate digestion followed by manual or automated ascorbic acid reduction.	269 268	476, 481 621	364	132 <sup>1</sup> (621)	
RADIOLOGICAL						
99. Alpha—Total, pCi per liter.	Proportional or scintillation counter.		648	581 <sup>1</sup> (75+78)		
100. Alpha—Counting error, pCi per liter.	.....do.		648	584 <sup>1</sup> (79)		
101. Beta—Total, pCi per liter.	Proportional counter.		648	601 <sup>1</sup> (75+78)		
102. Beta—Counting error, pCi per liter.	.....do.		648	602 <sup>1</sup> (79)		
103. (a) Radium—Total, pCi per liter.	.....do.		661	661		
(b) <sup>226</sup> Ra, pCi per liter.	Scintillation counter.		667		" (81)	
RANDOM						
104. Total, milligrams per liter.	Gravimetric, 105 to 105° C.	270	91			
105. Total dissolved (filterable), milligrams per liter.	Glass fiber filtration, 100° C.	268	92			
106. Total suspended (nonfilterable), milligrams per liter.	Glass fiber filtration, 100 to 105° C.	268	94			
107. Settunable, milliliters per liter or milligrams per liter.	Volumetric or gravimetric.		95			
108. Total volatile, milligrams per liter.	Gravimetric, 550° C.	272	95			
109. Specific conductance, micro-mhos per centimeter at 25° C.	Wheatstone bridge conductivity.	273	71	120	140 <sup>1</sup> (606)	
110. Sulfate (as SO <sub>4</sub> ), milligrams per liter.	Gravimetric; turbidimetric or automated colorimetric (barium chloride).	277 279	408 408	434	133 <sup>1</sup> (626) 133 <sup>1</sup> (626)	
111. Sulfide (as S), milligrams per liter.	Titrimetric—iodine for levels greater than 1 mg per liter; Methylene blue photometric.	284	508		154	
112. Sulfite (as SO <sub>3</sub> ), milligrams per liter.	Titrimetric, iodine-iodate.	285	508	485		
113. Sulfonates, milligrams per liter.	Colorimetric (Methylene blue).	157	608	494	" (11)	
114. Temperature, degrees C.	Calibrated glass or electrometric thermometer.	286	126		" (31)	
115. Turbidity, NTU.	Nephelometer.	228	123	203	155	

<sup>1</sup> Recommendations for sampling and preservation of samples according to parameter measured may be found in "Methods for Chemical Analysis of Water and Wastes, 1974" U.S. Environmental Protection Agency, table 2, pp. viii-xx.

ORIGINAL  
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## RULES AND REGULATIONS

- \* All page references for USGS methods, unless otherwise noted, are to Brown, E., Skougstad, M. W., and Fishman, M. J., "Methods for Collection and Analysis of Water Samples for Dissolved Minerals and Gases," U.S. Geological Survey Techniques of Water-Resources Inv. book 5, ch. A1, (1973).
- \* EPA comparable method may be found on indicated page of "Official Methods of Analysis of the Association of Official Analytical Chemists" methods manual, 12th ed. (1975).
- \* Manual distillation is not required if comparability data on representative effluent samples are on company file to show that this preliminary distillation step is not necessary; however, manual distillation will be required to resolve any controversy.
- \* The method used must be specified.
- \* The 5 tube MPN is used.
- \* Slack, E. V. and others, "Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples," U.S. Geological Survey Techniques of Water-Resources Inv. book 5, ch. A4 (1973).
- \* Since the membrane filter technique usually yields low and variable recovery from chlorinated wastewaters, the MPN method will be required to resolve any controversy.
- \* Adequately tested methods for bensidine are not available. Until approved methods are available, the following interim method can be used for the estimation of bensidine: (1) "Method for Bensidine and Its Salts in Wastewaters," available from Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45260.
- \* American National Standard on Photographic Processing Effluents, Apr. 2, 1973. Available from ANSI, 1430 Broadway, New York, N.Y. 10018.
- \* Fishman, M. J. and Brown, Eugene, "Selected Methods of the U.S. Geological Survey for Analysis of Wastewaters," (1973) open-file report 70-177.
- \* Procedures for pentachlorophenol, chlorinated organic compounds and pesticides can be obtained from the Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45260.
- \* Color method (2-2-MI procedure) available from Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45260.
- \* For samples suspected of having thiocyanate interference, magnesium chloride is used as the digestion catalyst. In the approved test procedure for cyanides, the recommended catalysts are replaced with 20 ml of a solution of 510 g/l magnesium chloride ( $MgCl_2 \cdot 6H_2O$ ). This substitution will eliminate thiocyanate interference for both total cyanide and cyanide amenable to chlorination measurements.
- \* For the determination of total metals the sample is not filtered before processing. Because vigorous digestion procedures may result in a loss of certain metals through precipitation, a less vigorous treatment is recommended as given on p. 25 (A.1.4) of "Methods for Chemical Analysis of Water and Wastes" (1974). In those instances where a more vigorous digestion is desired the procedure on p. 32 (A.1.3) should be followed. For the measurement of the noble metal series (gold, iridium, osmium, palladium, platinum, rhodium and ruthenium), an aqua regia digestion is to be substituted as follows: Transfer a representative aliquot of the well-mixed sample to a Griffin beaker and add 3 ml of concentrated redistilled  $HNO_3$ . Place the beaker on a steam bath and evaporate to dryness. Cool the beaker and carefully add a 5 ml portion of aqua regia. (Aqua regia is prepared immediately before use by carefully adding 3 volumes of concentrated  $HCl$  to one volume of concentrated  $HNO_3$ .) Cover the beaker with a watch glass and return to the steam bath. Continue heating the covered beaker for 30 min. Remove cover and evaporate to dryness. Cool and take up the residue in a small quantity of 1:1  $HCl$ . Wash down the beaker walls and watch glass with distilled water and filter the sample to remove silicates and other insoluble material that could clog the atomizer. Adjust the volume to some predetermined value based on the expected metal concentration. The sample is now ready for analysis.
- \* As the various furnace devices (Spectrom AA) are essentially atomic absorption techniques, they are considered to be approved test methods. Methods of standard addition are to be followed as noted in p. 75 of "Methods for Chemical Analysis of Water and Wastes," 1974.
- \* Dissolved metals are defined as those constituents which will pass through a 0.45  $\mu m$  membrane filter. A pre-filtration is permissible to free the sample from larger suspended solids. Filter the sample as soon as practical after collection using the first 50 to 100 ml to rinse the filter flask. (Glass or plastic filtering apparatus are recommended to avoid possible contamination.) Discard the portion used to rinse the flask and collect the required volume of filtrate. Acidify the filtrate with 1:1 redistilled  $HNO_3$  to a pH of 2. Normally, 3 ml of (1:1) acid per liter should be sufficient to preserve the samples.
- \* See "Atomic Absorption Newsletter," vol. 12, 75 (1974). Available from Perkin-Elmer Corp., Main Ave., Norwalk, Conn. 06852.
- \* Method available from Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45260.
- \* Recommended methods for the analysis of silver in industrial wastewaters at concentrations of 1 mg/l and above are inadequate where silver exists as an inorganic halide. Silver halides such as the bromide and chloride are relatively insoluble in reagents such as nitric acid but are readily soluble in an aqueous buffer of sodium thiosulfate and sodium hydroxide to a pH of 12. Therefore, for levels of silver above 1 mg/l 20 ml of sample should be diluted to 100 ml by adding 40 ml each of 2M  $Na_2S_2O_3$  and 2M  $NaOH$ . Standards should be prepared in the same manner. For levels of silver below 1 mg/l the recommended method is satisfactory.
- \* An automated hydrazine reduction method is available from the Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45260.
- \* A number of such systems manufactured by various companies are considered to be comparable in their performance. In addition, another technique, based on combustion-methane detection is also acceptable.
- \* Gerzila, D., Brown, E., "Methods for Analysis of Organic Substances in Water": U.S. Geological Survey Techniques of Water-Resources Inv. book 5, ch. A3 (1973).
- \* R. F. Adams and E. G. Ackman, "Direct Determination of Elemental Phosphorus by Gas-Liquid Chromatography," "Journal of Chromatography," vol. 47, No. 3, pp. 421-424, 1970.
- \* The method found on p. 75 measures only the dissolved portion while the method on p. 76 measures only suspended. Therefore, the 2 results must be added together to obtain "total."
- \* Stevens, R. E., Fitch, J. F., and Smart, G. F., "Water Temperature—Influential Factors, Field Measurement and Data Presentation," U.S. Geological Survey Techniques of Water-Resources Inv. book 1 (1973).

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Continued)

Section 5 - Monitoring (Cont'd)

- o. Are the prescribed procedures followed exactly?

Comments: Yes - with one exception. The chloride (or  
procedure (STD. Methods 14th ed. page 302) has been modified  
to include a potentiometric endpoint. The previous  
use of a color indicator is not viable due to the  
coloration of the samples involved.

- p. Has approval of any alternate procedures been obtained from USEPA?

No

If so - list parameter(s) involved and approval date(s):

NOTE: USEPA approval of the modified procedure used  
for chloride analysis is NOT NECESSARY SINCE THE  
NPDES PERMIT DOES NOT REQUIRE ANALYSIS FOR THIS PARAMETER

- q. Are the following analytical references for wastewaters on hand?

Yes 40 CFR 136 (as amended effective 4/1/77)

Yes "Standard Methods for the Examination of Water and Waste-water," 14th Edition (American Public Health Association)

Yes "Annual Book of Standards, Part 31, Water, 1975" (American Society for Testing and Materials)

Yes "Methods for Chemical Analysis of Water and Waste, 1974" (National Environmental Research Center, USEPA)

- r. Are the analytical instruments used for wastewater analysis calibrated routinely? Yes If yes - list:

<u>Instrument</u>	<u>Calibration Freq.</u>	<u>Last Calibration</u>	<u>Records Kept?</u>
<u>Conductivity meter</u>	<u>1/month</u>	<u>—</u>	<u>No *</u>
<u>pH meter</u>	<u>before each test</u>	<u>standard is checked</u>	
<u>TOC Analyzer</u>	<u>before each test</u>	<u>standard is checked</u>	
<u>Colorimeter</u>	<u>before each test</u>	<u>standard is checked</u>	
<u>Anal. Balance</u>	<u>1/two months</u>	<u>Outside calibration</u>	

\* Recommended record be kept

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) ORIGINAL  
(red)

Section 5 - Monitoring (Cont'd)

r. (Cont'd)

If not (or if program is judged inadequate) - list recommendations:

<u>Instrument</u>	<u>Calibration Method</u>	<u>Calibration Frequency</u>
Conductivity Meter	Standard KCl Soln.	1/yr. *

\* Recommended permanent record be kept

s. Are analytical records properly signed and dated? Yes

t. Are all records relating to the permit monitoring program, including calibration and maintenance of sampling and analytical instruments and recordings from continuous monitoring equipment, retained for a minimum of three years? Yes Are these records maintained in an orderly fashion? Yes Are they readily accessible? Yes

Comments: \_\_\_\_\_

Corrective measures (as applicable): \_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) ORIGINAL  
(Red)

Section 5 - Monitoring (Cont'd)

u. Is there an analytical quality control program? Yes - (informal)

If yes - describe and evaluate adequacy: Standards run with samples as indicated in paragraph 2 on page 35. No formal and complete quality assurance program due to insufficient professional staff.

Recommendations (if any) for improvement: A formal quality assurance program consistent with the USEPA Quality Assurance manual would require that a professional be added to the Quality Control group. In the absence of this staff increase, the number of permit parameters should be periodically checked by run standard samples.

v. Have comparative analyses of split samples been performed with another laboratory? Yes

If yes - list:

<u>Other Lab</u>	<u>Date</u>	<u>Parameter</u>	<u>Plant Results</u>	<u>Other Lab Result</u>

w. Are some permit monitoring analyses performed by an outside laboratory? Yes If yes - by whom? Truett Laboratories, Wheeling, W.V.  
Why? BOD5 - inadequate professional staff  
Cape + Control - inadequate professional staff + weather considerations

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd) ORIGINAL  
(Red)Section 5 - Monitoring (Cont'd)

w. (Cont'd)

Are there any problems with the outside analyses (time, cost, reliability, etc.)? Yes

If yes - describe: There has been occasional difficulty with the timely receipt of results.

Corrective measures (as applicable) underway or planned: Problem has been discussed with TADET by plant personnel

x. List all routine monitoring reports required to be submitted to regulatory agencies:

<u>Agency</u>	<u>Report</u>	<u>Freq. of Submittal</u>	<u>Date Due</u>
<u>USEPA</u>	<u>Monthly</u>	<u>Quarterly</u>	<u>28 Days after end of quarter</u>
<u>(CITY TO STATE)</u>	<u>Monitoring Report</u>		
<u>WV DNR</u>	<u>Monitoring</u>	<u>Monthly</u>	<u>Following Month</u>

y. Are these reports being submitted in a timely fashion? Yes

If not - comment: \_\_\_\_\_

Corrective measures (as applicable) underway or planned: \_\_\_\_\_

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd) **ORIGINAL (Red)**Section 5 - Monitoring (Cont'd)

- z. Are complete and orderly records kept of monitoring reports submitted to regulatory agencies? YES

If not - comment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- aa. Is the plant laboratory(ies) housekeeping satisfactory? YES

If not - comment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as applicable) recommended: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- bb. List the educational and experience credentials of those performing or supervising the wastewater monitoring program:

<u>Position</u>	<u>Name</u>	<u>Education</u>	<u>Analytical Experience (Yrs.)</u>
Supervisor	C.W. Tribett	B.S. Math + Chem.	17 years
Quality Control			
Analytical	Stephanie Duck	A.S. Biol. + Chem.	5 years
Technician			

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Part C - Water Pollution Control Program Review (Cont'd) **ORIGINAL**  
Section 5 - Monitoring (Cont'd) **(Red)**

bb. (Cont'd)

<u>Position</u>	<u>Name</u>	<u>Education</u>	<u>Analytical Experience (Yrs.)</u>

Does the above staff appear adequate in numbers and suitably qualified? No - Not Fully

If no - give recommended corrective actions (as applicable):  
ONE additional professional staff member would  
be required in order to implement and sustain  
a comprehensive quality assurance program.  
(SEE part 4 - this section)

cc. Are there any weaknesses or problems in the permit monitoring program that are not covered above? No

If yes - discuss: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Corrective actions (as applicable): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 6 - Oil Spill Prevention and Control

ORIGINAL  
10/1/81

a. Is an Oil "Spill Prevention, Control, and Countermeasure" (SPCC) Plan required by 40 CFR 112? Yes (Required if more than 660 gallons storage capacity aboveground in one container, or 1320 gallons or more total aboveground, or 42,000 gallons or more total belowground.)

b. If required, has an oil SPCC Plan been prepared? Yes  
Is it signed by a Professional Engineer? Yes  
Are transformer oils (including PCB's) covered? Yes  
If not - should they be? \_\_\_\_\_

c. Is the Oil SPCC Plan current (particularly with respect to regulatory agency contacts and plant response team names and telephone numbers)? No

Has the three-year review (40 CFR 112.5(b)) been made? In progress

If made - when? In progress

What changes were found necessary? In progress

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

When will they be completed (required within six months - 40 CFR 112.5(b))? Not Known

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Part C - Water Pollution Control Program Review (Cont'd) ORIGINAL

(Red)

Section 6 - Oil Spill Prevention and Control (Cont'd)

- d. Has the oil SPCC plan been checked or reviewed by a regulatory agency (not mandatory)? No

If yes - list any corrective measures required:

Corrective Measures

Status


- e. Have one or more oil spills occurred since January 10, 1973? No

If yes - are they reviewed in the Oil SPCC Plan (40 CFR CFR 112)?

NA

Did any spill since January 10, 1973 discharge into a waterbody?

No

If yes - was it (were they) reported as required by 33 CFR 153.203?

NA If reported - list:

<u>Date of Spill</u>	<u>Est. Amount</u>	<u>Report Date</u>	<u>Agency Enforcement Action (if any)</u>
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SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)ORIGINAL  
(Red)Section 6 - Oil Spill Prevention and Control (Cont'd)

- f. If two reportable spills occurred within a 12-month period, or more than 1000 gallons of oil was discharged in a single incident, has the special report to the EPA Regional Administrator (40 CFR 112.4) been submitted? N.A.

If yes - when? N.A.

- g. Does the Oil SPCC Plan include an implementation program? Yes

If yes - was it completed by January 10, 1975 (40 CFR 112.3(a))?

Yes

If not - was an extension requested? N.A.

If an extension was requested:

Date of Request \_\_\_\_\_ Extended Completion Date \_\_\_\_\_

Was extended date met? \_\_\_\_\_ Was EPA Regional Administrator so notified (not mandatory)? \_\_\_\_\_ When? \_\_\_\_\_

- h. Does the oil SPCC Plan follow the applicable guidelines promulgated in 40 CFR 112.7? (copy attached - Pages 43a-43d) Yes

If not, list discrepancies: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective actions (as applicable) underway or planned: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

ORIGINAL  
(Red)

- (iv) Weirs, booms or other barriers
- (v) Spill diversion ponds
- (vi) Retention ponds
- (vii) Sorbent materials
- (2) Offshore facilities.
- (i) Curbing, drip pans
- (ii) Sumps and collection systems
- (d) When it is determined that the installation of structures or equipment listed in § 112.7(c) to prevent discharged oil from reaching the navigable waters is not practicable from any onshore or offshore facility, the owner or operator should clearly demonstrate such impracticability and provide the following:

(1) A strong oil spill contingency plan following the provision of 40 CFR Part 109.

(2) A written commitment of manpower, equipment and materials required to expeditiously control and remove any harmful quantity of oil discharged.

(e) In addition to the minimal prevention standards listed under § 112.7(c), sections of the Plan should include a complete discussion of conformance with the following applicable guidelines, other effective spill prevention and containment procedures (or, if more stringent, with State rules, regulations and guidelines):

(1) Facility drainage (onshore); (excl. drilling production facilities), (i) Drainage from diked storage areas should be restrained by valves or other positive means to prevent a spill or other excessive leakage of oil into the drainage system or inplant effluent treatment system, except where plan systems are designed to handle such leakage. Diked areas may be emptied by pumps or ejectors; however, these should be manually activated and the condition of the accumulation should be examined before starting to be sure no oil will be discharged into the water.

(ii) Flapper-type drain valves should not be used to drain diked areas. Valves used for the drainage of diked areas should, as far as practical, be of manual, open-and-closed design. When plant drainage drains directly into water courses and not into wastewater treatment plants, retained storm water should be inspected as provided in paragraph (e) (2) (iii) (B, C and D) before drainage.

(iii) Plant drainage systems from undiked areas should, if possible, flow into ponds, lagoons or catchment basins, designed to retain oil or return it to the facility. Catchment basins should not be located in areas subject to periodic flooding.

(iv) If plant drainage is not engineered as above, the final discharge of all in-plant ditches should be equipped with a diversion system that could, in the event of an uncontrolled spill, return the oil to the plant.

(v) Where drainage waters are treated in more than one treatment unit, natural hydraulic flow should be used. If pump transfer is needed, two "lift" pumps should be provided, and at least one of the pumps should be permanently installed when such treatment is continuous. In any event, whatever techniques are used facility drainage systems should be adequately engineered to prevent oil from reaching navigable waters in the event of equipment failure.

#### § 112.7 Guidelines for the preparation and implementation of a Spill Prevention Control and Countermeasure Plan.

The SPCC Plan shall be a carefully thought-out plan, prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources. If the plan calls for additional facilities or procedures, methods, or equipment not yet fully operational, these items should be discussed in separate paragraphs, and the details of installation and operational start-up should be explained separately. The complete SPCC Plan shall follow the sequence outlined below, and include a discussion of the facility's conformance with the appropriate guidelines listed:

(a) A facility which has experienced one or more spill events within twelve months prior to the effective date of this part should include a written description of each such spill, corrective action taken, and plans for preventing recurrence.

(b) Where experience indicates a reasonable potential for equipment failure (such as tank overflow, rupture, or leakage), the plan should include a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each major type of failure.

(c) Appropriate containment and/or diversionary structures or equipment to prevent discharged oil from reaching a navigable water course should be provided. One of the following preventive systems or its equivalent should be used as a minimum:

- (1) Onshore facilities.
- (i) Dikes, berms or retaining walls sufficiently impervious to contain spilled oil
- (ii) Curbing
- (iii) Culverting, gutters or other drainage systems

human error at the facility.

**(2) Bulk storage tanks (onshore): (excluding production facilities).** (i) No tank should be used for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.

(ii) All bulk storage tank installations should be constructed so that a secondary means of containment is provided for the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation. Diked areas should be sufficiently impervious to contain spilled oil. Dikes, containment curbs, and pits are commonly employed for this purpose, but they may not always be appropriate. An alternative system could consist of a complete drainage trench enclosure arranged so that a spill could terminate and be safely confined in an in-plant catchment basin or holding pond.

(iii) Drainage of rainwater from the diked area into a storm drain or an effluent discharge that empties into an open water course, lake, or pond, and bypassing the in-plant treatment system may be acceptable if:

(A) The bypass valve is normally sealed closed.

(B) Inspection of the run-off rain water ensures compliance with applicable water quality standards and will not cause a harmful discharge as defined in 40 CFR 110.

(C) The bypass valve is opened, and released following drainage under responsible supervision.

(D) Adequate records are kept of such events.

(iv) Buried metallic storage tanks represent a potential for undetected spills. A new buried installation should be protected from corrosion by coatings, cathodic protection or other effective methods compatible with local soil conditions. Such buried tanks should at least be subjected to regular pressure testing.

(v) Partially buried metallic tanks for the storage of oil should be avoided, unless the buried section of the shell is adequately coated, since partial burial in damp earth can cause rapid corrosion of metallic surfaces, especially at the earth/air interface.

(vi) Aboveground tanks should be subject to periodic integrity testing, taking into account tank design (floating roof, etc.) and using such techniques as hydrostatic testing, visual inspection or a system of non-destructive shell thickness testing. Comparison records should be kept where appropriate, and tank supports and foundations should be included in these inspections. In addition, the outside of the tank should frequently be observed by operating personnel for signs of deterioration, leaks which might cause a spill, or accumulation of oil inside diked areas.

(vii) To control leakage through defective internal heating coils, the following factors should be considered and applied, as appropriate.

(A) The steam return or exhaust lines from internal heating coils which discharge into an open water course should be monitored for contamination, or passed through a settling tank, skimmer, or other separation or retention system.

(B) The feasibility of installing an external heating system should also be considered.

(viii) New and old tank installations should, as far as practical, be fail-safe engineered or updated into a fail-safe engineered installation to avoid spills. Consideration should be given to providing one or more of the following devices:

(A) High liquid level alarms with an audible or visual signal at a constantly manned operation or surveillance station; in smaller plants an audible air vent may suffice.

(B) Considering size and complexity of the facility, high liquid level pump cutoff devices set to stop flow at a predetermined tank content level.

(C) Direct audible or code signal communication between the tank gauger and the pumping station.

(D) A fast response system for determining the liquid level of each bulk storage tank such as digital computers, telepulse, or direct vision gauges or their equivalent.

(E) Liquid level sensing devices should be regularly tested to insure proper operation.

(ix) Plant effluents which are discharged into navigable waters should have disposal facilities observed frequently enough to detect possible system upsets that could cause an oil spill event.

(x) Visible oil leaks which result in a loss of oil from tank seams, gaskets, rivets and bolts sufficiently large to cause the accumulation of oil in diked areas should be promptly corrected.

(xi) Mobile or portable oil storage tanks (onshore) should be positioned or located so as to prevent spilled oil from reaching navigable waters. A secondary means of containment, such as dikes or catchment basins, should be furnished for the largest single compartment or tank. These facilities should be located where they will not be subject to periodic flooding or washout.

**(3) Facility transfer operations, pumping, and in-plant process (onshore): (excluding production facilities).** (i) Buried piping installations should have a protective wrapping and coating and should be cathodically protected if soil conditions warrant. If a section of buried line is exposed for any reason, it should be carefully examined for deterioration. If corrosion damage is found, additional examination and corrective action should be taken as indicated by the magnitude of the damage. An alternative would be the more frequent use of exposed pipe corridors or galleries.

(ii) When a pipeline is not in service, or in standby service for an extended time the terminal connection at the transfer point should be capped or blank-flanged, and marked as to origin.

(iii) Pipe supports should be properly designed to minimize abrasion and corrosion and allow for expansion and contraction.

(iv) All aboveground valves and pipelines should be subjected to regular examinations by operating personnel at which time the general condition of items, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces should be assessed. In addition, periodic pressure testing may

be warranted for piping in areas where facility drainage is such that a failure might lead to a spill event.

(v) Vehicular traffic granted entry into the facility should be warned verbally or by appropriate signs to be sure that the vehicle, because of its size, will not endanger above ground piping.

**(4) Facility tank car and tank truck loading/unloading rack (onshore).** (i) Tank car and tank truck loading/unloading procedures should meet the minimum requirements and regulation established by the Department of Transportation.

(ii) Where rack area drainage does not flow into a catchment basin or treatment facility designed to handle spills, a quick drainage system should be used for tank truck loading and unloading areas. The containment system should be designed to hold at least maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded in the plant.

(iii) An interlocked warning light or physical barrier system, or warning signs, should be provided in loading/unloading areas to prevent vehicular departure before complete disconnect of flexible or fixed transfer lines.

(iv) Prior to filling and departure of any tank car or tank truck, the lowermost drain and all outlets of such vehicles should be closely examined for leakage, and if necessary, tightened, adjusted, or replaced to prevent liquid leakage while in transit.

**(5) Oil production facilities (onshore).**

(i) **Definition.** An onshore production facility may include all wells, flowlines, separation equipment, storage facilities, gathering lines, and auxiliary non-transportation-related equipment and facilities in a single geographical oil or gas field operated by a single operator.

(ii) **Oil production facility (onshore) drainage.** (A) At tank batteries and central treating stations where an accidental discharge of oil would have a reasonable possibility of reaching navigable waters, the dikes or equivalent required under § 112.7(c)(1) should have drains closed and sealed at all times except when rainwater is being drained. Prior to drainage, the diked area should be inspected as provided in paragraph (e)(2)(iii)(B), (C), and (D). Accumulated oil on the rainwater should be picked up and returned to storage or disposed of in accordance with approved methods.

(B) Field drainage ditches, road ditches, and oil traps, sumps or skimmers, if such exist, should be inspected at regularly scheduled intervals for accumulation of oil that may have escaped from small leaks. Any such accumulations should be removed.

(iii) **Oil production facility (onshore) bulk storage tanks.** (A) No tank should be used for the storage of oil unless its material and construction are compatible with the material stored and the conditions of storage.

(B) All tank battery and central treating plant installations should be provided with a secondary means of containment for the entire contents of the largest single tank if feasible, or alternate systems such as those outlined in § 112.7(c)(1). Drainage from undiked areas should be safely confined in a catchment basin or

holding pond.

(C) All tanks containing oil should be visually examined by a competent person for condition and need for maintenance on a scheduled periodic basis. Such examination should include the foundation and supports of tanks that are above the surface of the ground.

(D) New and old tank battery installations should, as far as practical, be fail-safe engineered or updated into a fail-safe engineered installation to prevent spills. Consideration should be given to one or more of the following:

(1) Adequate tank capacity to assure that a tank will not overflow should a pumper, gauger be delayed in making his regular rounds.

(2) Overflow equalizing lines between tanks so that a full tank can overflow to an adjacent tank.

(3) Adequate vacuum protection to prevent tank collapse during a pipeline run.

(4) High level sensors to generate and transmit an alarm signal to the computer where facilities are a part of a computer production control system.

(iv) Facility transfer operations, oil production facility (onshore). (A) All above ground valves and pipelines should be examined periodically on a scheduled basis for general condition of items such as flange joints, valve glands and bodies, drip pans, pipeline supports, pumping well polish rod stuffing boxes, bleeder and gauge valves.

(B) Salt water (oil field brine) disposal facilities should be examined often, particularly following a sudden change in atmospheric temperature to detect possible system upsets that could cause an oil discharge.

(C) Production facilities should have a program of flowline maintenance to prevent spills from this source. The program should include periodic examinations, corrosion protection, flowline replacement, and adequate records, as appropriate, for the individual facility.

(6) Oil drilling and workover facilities (onshore) (i) Mobile drilling or workover equipment should be positioned or located so as to prevent spilled oil from reaching navigable waters.

(ii) Depending on the location, catchment basins or diversion structures may be necessary to intercept and contain spills of fuel, crude oil, or oily drilling fluids.

(iii) Before drilling below any casing string or during workover operations, a blowout prevention (BOP) assembly and well control system should be installed that is capable of controlling any well head pressure that is expected to be encountered while that BOP assembly is on the well. Casing and BOP installations should be in accordance with State regulatory agency requirements.

(7) Oil drilling, production, or workover facilities (offshore). (i) Definition: "An oil drilling, production or workover facility (offshore)" may include all drilling or workover equipment, wells, flowlines, gathering lines, platforms, and auxiliary nontransportation-related equipment and facilities in a single geographical oil or gas field operated by a single operator.

(ii) Oil drainage collection equipment should be used to prevent and control small oil spillage around pumps, glands,

valves, flanges, expansion joints, hoses, drain lines, separators, treaters, tanks, and allied equipment. Drains on the facility should be controlled and directed toward a central collection sump or equivalent collection system sufficient to prevent discharges of oil into the navigable waters of the United States. Where drains and sumps are not practicable oil contained in collection equipment should be removed as often as necessary to prevent overflow.

(iii) For facilities employing a sump system, sump and drains should be adequately sized and a spare pump or equivalent method should be available to remove liquid from the sump and assure that oil does not escape. A regular scheduled preventive maintenance inspection and testing program should be employed to assure reliable operation of the liquid removal system and pump start-up device. Redundant automatic sump pumps and control devices may be required on some installations.

(iv) In areas where separators and treaters are equipped with dump valves whose predominant mode of failure is in the closed position and pollution risk is high, the facility should be specially equipped to prevent the escape of oil. This could be accomplished by extending the flare line to a diked area if the separator is near shore, equipping it with a high liquid level sensor that will automatically shut-in wells producing to the separator, parallel redundant dump valves, or other feasible alternatives to prevent oil discharges.

(v) Atmospheric storage or surge tanks should be equipped with high liquid level sensing devices or other acceptable alternatives to prevent oil discharges.

(vi) Pressure tanks should be equipped with high and low pressure sensing devices to activate an alarm and/or control the flow or other acceptable alternatives to prevent oil discharges.

(vii) Tanks should be equipped with suitable corrosion protection.

(viii) A written procedure for inspecting and testing pollution prevention equipment and systems should be prepared and maintained at the facility. Such procedures should be included as part of the SPCC Plan.

(ix) Testing and inspection of the pollution prevention equipment and systems at the facility should be conducted by the owner or operator on a scheduled periodic basis commensurate with the complexity, conditions and circumstances of the facility or other appropriate regulations.

(x) Surface and subsurface well shut-in valves and devices in use at the facility should be sufficiently described to determine method of activation or control, e.g., pressure differential, change in fluid or flow conditions, combination of pressure and flow, manual or remote control mechanisms. Detailed records for each well, while not necessarily part of the plan should be kept by the owner or operator.

(xi) Before drilling below any casing string, and during workover operations a blowout preventer (BOP) assembly and well control system should be installed that is capable of controlling any well-head pressure that is expected to be encountered while that BOP assembly is

on the well. Casing and BOP installation should be in accordance with State regulatory agency requirements. ORIGINAL (Red)

(xii) Extraordinary well control measures should be provided should emergency conditions, including fire, loss of control and other abnormal conditions, occur. The degree of control system redundancy should vary with hazard exposure and probable consequences of failure. It is recommended that surface shut-in systems have redundant or "fail close" valving. Subsurface safety valves may not be needed in producing wells that will not flow but should be installed as required by applicable State regulations.

(xiii) In order that there will be no misunderstanding of joint and separate duties and obligations to perform work in a safe and pollution free manner, written instructions should be prepared by the owner or operator for contractors and subcontractors to follow whenever contract activities include servicing a well or systems appurtenant to a well or pressure vessel. Such instructions and procedures should be maintained at the offshore production facility. Under certain circumstances and conditions such contractor activities may require the presence at the facility of an authorized representative of the owner or operator who would intervene when necessary to prevent a spill event.

(xiv) All manifolds (headers) should be equipped with check valves on individual flowlines.

(xv) If the shut-in well pressure is greater than the working pressure of the flowline and manifold valves up to and including the header valves associated with that individual flowline, the flowline should be equipped with a high pressure sensing device and shut-in valve at the wellhead unless provided with a pressure relief system to prevent over pressuring.

(xvi) All pipelines appurtenant to the facility should be protected from corrosion. Methods used, such as protective coatings or cathodic protection, should be discussed.

(xvii) Sub-marine pipelines appurtenant to the facility should be adequately protected against environmental stresses and other activities such as fishing operations.

(xviii) Sub-marine pipelines appurtenant to the facility should be in good operating condition at all times and inspected on a scheduled periodic basis for failures. Such inspections should be documented and maintained at the facility.

(8) Inspections and records. Inspections required by this part should be in accordance with written procedures developed for the facility by the owner or operator. These written procedures and a record of the inspections, signed by the appropriate supervisor or inspector, should be made part of the SPCC Plan and maintained for a period of three years.

(9) Security (excluding oil production facilities). (i) All plants handling, processing, and storing oil should be fully fenced, and entrance gates should be locked and/or guarded when the plant is not in production or is unattended.

(ii) The master flow and drain valves and any other valves that will permit

direct outward flow of the tank's content to the surface should be securely locked in the closed position when in non-operating or non-standby status.

(iii) The starter control on all oil pumps should be locked in the "off" position or located at a site accessible only to authorized personnel when the pumps are in a non-operating or non-standby status.

(iv) The loading/unloading connections of oil pipelines should be securely capped or blank-flanged when not in service or standby service for an extended time. This security practice should also apply to pipelines that are emptied of liquid content either by draining or by inert gas pressure.

(v) Facility lighting should be commensurate with the type and location of the facility. Consideration should be given to: (A) Discovery of spills occurring during hours of darkness, both by operating personnel, if present, and by non-operating personnel (the general public, local police, etc.) and (B) prevention of spills occurring through acts of vandalism.

(10) Personnel training and spill prevention procedures. (i) Owners or operators are responsible for properly instructing their personnel in the operation and maintenance of equipment to prevent the discharges of oil and applicable pollution control laws, rules and regulations.

(ii) Each applicable facility should have a designated person who is accountable for oil spill prevention and who reports to line management.

(iii) Owners or operators should schedule and conduct spill prevention briefings for their operating personnel at intervals frequent enough to assure adequate understanding of the SPCC Plan for that facility. Such briefings should highlight and describe known spill events or failures, malfunctioning components, and recently developed precautionary measures.

#### APPENDIX

Memorandum of Understanding between the Secretary of Transportation and the Administrator of the Environmental Protection Agency.

#### SECTION II—DEFINITIONS

The Environmental Protection Agency and the Department of Transportation agree that for the purposes of Executive Order 11548, the term:

(1) "Non-transportation-related onshore and offshore facilities" means:

(A) Fixed onshore and offshore oil well drilling facilities including all equipment and appurtenances related thereto used in drilling operations for exploratory or development wells, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(B) Mobile onshore and offshore oil well drilling platforms, barges, trucks, or other mobile facilities including all equipment and appurtenances related thereto when such mobile facilities are fixed in position for the purpose of drilling operations for exploratory or development wells, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(C) Fixed onshore and offshore oil production structures, platforms, derricks, and rigs including all equipment and appurtenances related thereto, as well as completed wells and the wellhead separators, oil separators,

and storage facilities used in the production of oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(D) Mobile onshore and offshore oil production facilities including all equipment and appurtenances related thereto as well as completed wells and wellhead equipment, piping from wellheads to oil separators, oil separators, and storage facilities used in the production of oil when such mobile facilities are fixed in position for the purpose of oil production operations, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(E) Oil refining facilities including all equipment and appurtenances related thereto as well as in-plant processing units, storage units, piping, drainage systems and waste treatment units used in the refining of oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(F) Oil storage facilities including all equipment and appurtenances related thereto as well as fixed bulk plant storage, terminal oil storage facilities, consumer storage, pumps and drainage systems used in the storage of oil, but excluding inline or breakout storage tanks needed for the continuous operation of a pipeline system and any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(G) Industrial, commercial, agricultural or public facilities which use and store oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(H) Waste treatment facilities including in-plant pipelines, effluent discharge lines, and storage tanks, but excluding waste treatment facilities located on vessels and terminal storage tanks and appurtenances for the reception of oily ballast water or tank washings from vessels and associated systems used for off-loading vessels.

(I) Loading racks, transfer hoses, loading arms and other equipment which are appurtenant to a nontransportation-related facility or terminal facility and which are used to transfer oil in bulk to or from highway vehicles or railroad cars.

(J) Highway vehicles and railroad cars which are used for the transport of oil exclusively within the confines of a nontransportation-related facility and which are not intended to transport oil in interstate or intrastate commerce.

(K) Pipeline systems which are used for the transport of oil exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended to transport oil in interstate or intrastate commerce, but excluding pipeline systems used to transfer oil in bulk to or from a vessel.

(2) "Transportation-related onshore and offshore facilities" means:

(A) Onshore and offshore terminal facilities including transfer hoses, loading arms and other equipment and appurtenances used for the purpose of handling or transferring oil in bulk to or from a vessel as well as storage tanks and appurtenances for the reception of oily ballast water or tank washings from vessels, but excluding terminal waste treatment facilities and terminal oil storage facilities.

(B) Transfer hoses, loading arms and other equipment appurtenant to a nontransportation-related facility which is used to transfer oil in bulk to or from a vessel.

(C) Interstate and intrastate onshore and offshore pipeline systems including pumps and appurtenances related thereto as well as in-line or breakout storage tanks needed for the continuous operation of a pipeline system, and pipelines from onshore and offshore oil production facilities, but excluding

onshore and offshore piping from wellheads to oil separators and pipelines which are used for the transport of oil exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended to transport oil in interstate or intrastate commerce or to transfer oil in bulk to or from a vessel.

(D) Highway vehicles and railroad cars which are used for the transport of oil in interstate or intrastate commerce and the equipment and appurtenances related thereto, and equipment used for the fueling of locomotive units, as well as the rights-of-way on which they operate. Excluded are highway vehicles and railroad cars and motive power used exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended for use in interstate or intrastate commerce.

[FR Doc.73-25448 Filed 12-10-73; 8:43 am]

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SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 6 - Oil Spill Prevention and Control (Cont'd)

i. What aboveground oil storage tanks are not diked? None

Should they be diked? N.A.

If yes - what is the current status of plans for any additional diking deemed necessary? N.A.

j. Is existing diking around oil storage tanks adequate (capacity & condition)? Existing dikes are adequate. They have no installed means of drainage.

If inadequate - what corrective measures (as applicable) are underway or planned? N.A.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd) ORIGINAL  
(Red)Section 6 - Oil Spill Prevention and Control (Cont'd)

- k. Are diking sumps, pumps, valves, etc. suitable, and in good condition? Yes

Comments - including corrective measures (as applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- \* l. Are oil loading/unloading stations (except barge handling facilities) provided with suitable spill prevention and containment facilities? No

Comments - including corrective measures (as applicable): \_\_\_\_\_

Corrective measures being investigated.

\_\_\_\_\_

\_\_\_\_\_

Note: Barge handling facilities transferring oil and/or chemicals will be covered by a separate audit.

- \* m. Is a satisfactory level of administrative control maintained over the drainage of liquids collected within diked areas? No

Are there written instructions? No

Comments - including corrective measures (as applicable): Suitable procedures should be developed and posted by all diked areas.

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit Protocol

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(Red)

Part C - Water Pollution Control Program Review (Cont'd)

Section 6 - Oil Spill Prevention and Control (Cont'd)

n. Are there oil booms installed in the plant sewer network system?

No

If no - should there be? No

If yes - are they adequate to prevent potential spills from reaching the receiving waterbody? N.A.

If not - what improvements should be made?

o. Are there in-place oil booms installed in the receiving waterbody at the plant outfalls? No If no - should there be? No

If booms are in place - do they appear adequate? N.A.

Describe and comment:

List any improvements (as applicable) underway or planned:

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a)

- Comments: A 500 FT. beam is stored in B/Dy. 100

**Comments:**

- Comments:**

- Comments: Boat has been launched several times  
from ramp near Outfall 003 (this outfall  
designated as Outfall 004 in July, 1977)

- Comment: Names and Telephone Numbers of Four (4)  
Contractors are Listed in O.I. JPC plan.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 6 - Oil Spill Prevention and Control (Cont'd)

- t. Is there an industrial cooperative group in the area which provides for mutual assistance in the event of an oil spill? Yes

If yes - what is the name of the group? Northern Ohio River Industrial Mutual Aid Council (NORIMAC)

Are we a member? Yes If no - why not? \_\_\_\_\_

- u. Does the Works have a trained oil spill response team? No

If no - should one be formed? No OK

Comments: Minor Oil Spills would be handled by operating personnel involved. Larger spills will be dealt with by the plant's disaster organization.

If yes - are organization and training adequate? N.A.

If not - comment (including recommendations): \_\_\_\_\_

- v. How are waste oils (lubricating, etc.) disposed of? They are collected in drums and given to employees for personal use as requested.

Is this satisfactory? Yes

SCD Environmental Audit Protocol

ORIGINAL

Part C - Water Pollution Control Program Review (Cont'd) (Red)Section 6 - Oil Spill Prevention and Control (Cont'd)

- t. Is there an industrial cooperative group in the area which provides for mutual assistance in the event of an oil spill? Yes

If yes - what is the name of the group? Northern Ohio River Industrial Mutual A.I.D. Council (NORIMAC)

Are we a member? Yes If no - why not? \_\_\_\_\_

- u. Does the Works have a trained oil spill response team? NOT specific  
For this purpose.  
If no - should one be formed? No

Comments: Minor Oil Spills would be handled by operating personnel involved. Larger spills will be dealt with by the plant's disaster organization.

If yes - are organization and training adequate? N.A.

If not - comment (including recommendations): \_\_\_\_\_

- v. How are waste oils (lubricating, etc.) disposed of? They are collected in drums and given to employees for personal use as requested. Any excess is burned in incinerator.

Is this satisfactory? Yes

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) <sup>ORIGINAL</sup><sub>(Red)</sub>

Section 6 - Oil Spill Prevention and Control (Cont'd)

v. (Cont'd)

If no - how should they be handled? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

w. Are there known current or potential problems related to oil  
spills other than those covered above? NO

If yes - describe: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as applicable) underway or planned: N.A.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit ProtocolORIGINAL  
(Red)Part C - Water Pollution Control Program Review (Cont'd)Section 7 - Chemical Spill Prevention and Control

- a. Has a chemical "Spill Prevention, Control, and Countermeasure" (C-SPCC) Plan been prepared? Yes Is it current (particularly with respect to regulatory agency contacts, and plant response team names and phone numbers)? Yes<sup>\*</sup> Is it readily available throughout the plant? Yes

Comments: \*Chemical Spill Prevention Control and Countermeasure Plan was up-dated subsequent to the Environmental Review (1/1 June, 1977)

- b. Does the C-SPCC Plan appear to have any significant flaws or omissions? No

If yes - list: \_\_\_\_\_

Corrective measures (as applicable): \_\_\_\_\_

- c. Have there been any known spill-type discharges of chemicals to the receiving waterbody (or municipal waste treatment system) since January 1, 1975? Yes

If yes - list as follows: \_\_\_\_\_

## SCD Environmental Audit Protocol

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## Part C - Water Pollution Control Program Review (Cont'd)

## Section 7 - Chemical Spill Prevention and Control (Cont'd)

c. (Cont'd)

Date	Chemical	Est. Amount	Date Reported	Agency Response
5/24/73	Permalysa	100,000 Lbs.	—	—
9/24/73	TDI	100 gal	Telephone 9/24/73 Letter 9/28/73	—
2/6/74	Mercury	1 Lb	Letter 5/1/74	—
5/20/74	HCl	11,000 gal	Telephone 5/20/74 Letter 5/23/74	—
10/14/74	Malic Anhyd.	29,000 Lbs	Telephone 10/14/74 Letter 10/22/74	—
1/18/75	Malic Anhyd.	60,000 Lbs	Phone 1/18/75, Letter 1/17/75	WPCRA 04933-363 + Criminal 04933-363
6/8/76	TDA	5.15 gal	Telephone 6/8/74	—

d. Are any of the EPA proposed (40 CFR 116) list of "hazardous" chemicals stored or handled in amounts equal to or greater than the proposed "hazardous quantity" (40 CFR 118) (see attached list on Pages 51a-51e)? Yes

If yes - show as follows:

Chemical	"Hazardous Quantity"	Quantity Typically On Hand
Anhydrous Ammonia	100 Lbs.	10,000 Lbs.
Aniline	100 Lbs	70,000 Lbs
Chlorine	1 Lb.	70,000 Lbs.
Calcium Hydroxide	500 Lbs.	7,000 Lbs.
Formaldehyde	100 Lbs.	100,000 Lbs.
Hydrochloric Acid (33% HCl)	500 Lbs.	1,000,000 Lbs.
Malic Anhydride	500 Lbs.	400,000 Lbs.
Malic Acid	500 Lbs.	50,000 Lbs.
Nitric Acid (98%)	100 Lbs.	2,000,000 Lbs.
Phosgene	500 Lbs.	600,000 Lbs.
Sodium Bisulfite	500 Lbs.	2,000 Lbs. (EST.)
Sulfuric Acid	100 Lbs.	7,000,000 Lbs.
Toluene	100 Lbs.	5,000,000 Lbs.
Sodium Hydroxide	100 Lbs.	100,000 Lbs. (100°)
Zinc Bichromate	100 Lbs.	1,000 Lbs. (EST.)

Ad 100

TABLE 1. PROPOSED LIST OF HAZARDOUS SUBSTANCES

Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)
Acetaldehyde	\$ 10.00	100 (45.4)	Ammonium Hypophosphite	\$ 1.50	500 (227)
Acetic Acid	10.00	100 (45.4)	Ammonium Iodide	0.98	500 (227)
Acetic Anhydride	8.80	100 (45.4)	Ammonium Nitrate	0.93	500 (227)
Acetone Cyanchydrin	8.80	100 (45.4)	Ammonium Oxalate	1.50	500 (227)
Acetyl Bromide	1.50	500 (227)	Ammonium Pentaborate	1.50	500 (227)
Acetyl Chloride	1.50	500 (227)	Ammonium Persulfate	1.50	500 (227)
Acrolein	880.00	1 (0.454)	Ammonium Silicofluoride	7.50	100 (45.4)
Acrylonitrile	8.80	100 (45.4)	Ammonium Sulfamate	0.93	500 (227)
Adiponitrile	1.80	500 (227)	Ammonium Sulfide	1.50	500 (227)
Aldrin	360.00	1 (0.454)	Ammonium Sulfite	1.50	500 (227)
Allyl Alcohol	100.00	10 (4.54)	Ammonium Tartrate	1.50	500 (227)
Allyl Chloride	1.00	100 (45.4)	Ammonium Thiocyanate	0.98	500 (227)
Aluminum Fluoride	1.20	500 (227)	Ammonium Thiosulfate	0.98	500 (227)
Aluminum Sulfate	1.20	500 (227)	Amyl Acetate	2.30	100 (45.4)
Ammonia	8.80	100 (45.4)	Aniline	7.50	100 (45.4)
Ammonium Acetate	0.98	500 (227)	Antimony Pentachloride	6.20	100 (45.4)
Ammonium Benzoate	1.50	500 (227)	Antimony Pentafluoride	6.20	100 (45.4)
Ammonium Bicarbonate	1.50	500 (227)	Antimony Potassium Tartrate	6.20	100 (45.4)
Ammonium Bichromate	1.50	500 (227)	Antimony Tribromide	6.20	100 (45.4)
Ammonium Bifluoride	1.50	500 (227)	Antimony Trichloride	6.20	100 (45.4)
Ammonium Bisulfite	1.50	500 (227)	Antimony Trifluoride	6.20	100 (45.4)
Ammonium Bromide	1.50	500 (227)	Antimony Trioxide	6.20	100 (45.4)
Ammonium Carbonate	1.50	500 (227)	Arsenic Acid	6.20	100 (45.4)
Ammonium Carbonate	0.98	500 (227)	Arsenic Disulfide	3.60	100 (45.4)
Ammonium Chloride	1.50	500 (227)	Arsenic Pentoxide	62.00	10 (4.54)
Ammonium Chromate	1.50	500 (227)	Arsenic Trichloride	6.20	100 (45.4)
Ammonium Citrate	1.50	500 (227)	Arsenic Trioxide	62.00	10 (4.54)
Ammonium Fluoborate	1.50	500 (227)	Arsenic Trisulfide	36.00	10 (4.54)
Ammonium Fluoride	0.98	500 (227)	Barium Cyanide	750.00	1 (0.454)
Ammonium Hydroxide	10.00	100 (45.4)	Benzene	1.00	100 (45.4)

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.<sup>2</sup>Spills of this magnitude must be reported.Original  
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TABLE I. PROPOSED LIST OF HAZARDOUS SUBSTANCES (Cont'd)

Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)
Benzoic Acid	\$ 1.50	500 (227)	Chromic Acetate	\$ 1.50	500 (227)
Benzonitrile	7.50	100 (45.4)	Chromic Acid	0.98	500 (227)
Benzoyl Chloride	1.50	500 (227)	Chromic Sulfate	1.50	500 (227)
Benzyl Chloride	0.72	500 (227)	Chromous Chloride	0.70	500 (227)
Beryllium Chloride	1.20	500 (227)	Chromyl Chloride	1.50	500 (227)
Beryllium Fluoride	6.20	100 (45.4)	Cobaltous Bromide	6.20	100 (45.4)
Beryllium Nitrate	6.20	100 (45.4)	Cobaltous Fluoride	6.20	100 (45.4)
Butyl Acetate	8.80	100 (45.4)	Cobaltous Formate	6.20	100 (45.4)
Butylamine	10.00	100 (45.4)	Cobaltous Sulfamate	6.20	100 (45.4)
Butyric Acid	2.00	500 (227)	Coumaphos	750.00	1 (0.454)
Cadmium Acetate	750.00	1 (0.454)	Cresol	75.00	10 (4.54)
Cadmium Bromide	620.00	1 (0.454)	Cupric Acetate	62.00	10 (4.54)
Cadmium Chloride	620.00	1 (0.454)	Cupric Acetoarsenite	36.00	10 (4.54)
Calcium Arsenate	3.60	100 (45.4)	Cupric Chloride	62.00	10 (4.54)
Calcium Arsenite	7.50	100 (45.4)	Cupric Formate	62.00	10 (4.54)
Calcium Carbide	1.20	500 (227)	Cupric Glycinate	62.00	10 (4.54)
Calcium Chromate	1.50	500 (227)	Cupric Lactate	62.00	10 (4.54)
Calcium Cyanide	750.00	1 (0.454)	Cupric Nitrate	62.00	10 (4.54)
Calcium Dodecylbenzene Sulfonate	75.00	10 (4.54)	Cupric Oxalate	36.00	10 (4.54)
Calcium Hydroxide	1.50	500 (227)	Cupric Subacetate	62.00	10 (4.54)
Calcium Hypochlorite	490.00	1 (0.454)	Cupric Sulfate	62.00	10 (4.54)
Calcium Oxide	0.98	500 (227)	Cupric Sulfate, Ammoniated	62.00	10 (4.54)
Carbaryl	75.00	10 (4.54)	Cupric Tartrate	36.00	10 (4.54)
Captan	750.00	1 (0.454)	Cuprous Bromide	36.00	10 (4.54)
Carbon Disulfide	7.50	100 (45.4)	Cyanogen Chloride	750.00	1 (0.454)
Chlordane	360.00	1 (0.454)	Cyclohexane	1.00	100 (45.4)
Chlorine	280.00	1 (0.454)	2,4-D Acid	36.00	10 (4.54)
Chlorobenzene	36.00	10 (4.54)	2,4-D Esters	36.00	10 (4.54)
Chloroform	36.00	10 (4.54)	Dalapon	75.00	10 (4.54)
Chlorosulfonic Acid	7.50	100 (45.4)	DDT	360.00	1 (0.454)

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.<sup>2</sup>Spills of this magnitude must be reported.ORIGINAL  
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TABLE I. PROPOSED LIST OF HAZARDOUS SUBSTANCES (Cont'd)

Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)
Diazinon	\$360.00	1 (0.454)	Formaldehyde	\$ 10.00	100 (45.4)
Dicamba	7.50	100 (45.4)	Formic Acid	10.00	500 (227)
Dichlobenil	7.50	100 (45.4)	Fumaric Acid	1.50	500 (227)
Dichlone	750.00	1 (0.454)	Furfural	1.50	100 (45.4)
Dichlorvos	750.00	1 (0.454)	Guthion	360.00	1 (0.454)
Diieldrin	750.00	1 (0.454)	Heptachlor	360.00	1 (0.454)
Diethylamine	8.80	100 (45.4)	Hydrochloric Acid	1.50	500 (227)
Dimethylamine	8.80	100 (45.4)	Hydrofluoric Acid	2.00	500 (227)
Dinitrobenzene	7.50	100 (45.4)	Hydrogen Cyanide	1000.00	1 (0.454)
Dinitrophenol	75.00	10 (4.54)	Hydroxylamine	1.50	500 (227)
Diquat	7.50	100 (45.4)	Isoprene	1.00	100 (45.4)
Disulfoton	750.00	1 (0.454)	Isopropanolamine		
Diuron	75.00	10 (4.54)	Dodecylbenzene Sulfonate	75.00	10 (4.54)
Dodecylbenzene Sulfonic Acid	75.00	10 (4.54)	Kelthane	3.60	100 (45.4)
Dursban	750.00	1 (0.454)	Lead Acetate	1.20	500 (227)
Endosulfan	750.00	1 (0.454)	Lead Arsenate	0.70	500 (227)
Endrin	360.00	1 (0.454)	Lead Chloride	1.20	500 (227)
Ethion	750.00	1 (0.454)	Lead Fluoborate	1.20	500 (227)
Ethylbenzene	2.30	100 (45.4)	Lead Fluoride	3.60	100 (45.4)
Ethylenediamine	8.80	100 (45.4)	Lead Iodide	0.70	500 (227)
EDTA	6.72	500 (227)	Lead Nitrate	1.20	500 (227)
Ferric Ammonium Citrate	0.72	100 (45.4)	Lead Stearate	1.20	500 (227)
Ferric Ammonium Oxalate	6.20	100 (45.4)	Lead Sulfate	0.70	500 (227)
Ferric Chloride	6.20	100 (45.4)	Lead Sulfide	3.60	100 (45.4)
Ferric Fluoride	6.20	100 (45.4)	Lead Tetraacetate	1.20	500 (227)
Ferric Nitrate	6.20	100 (45.4)	Lead Thiocyanate	0.70	500 (227)
Ferric Sulfate	6.20	100 (45.4)	Lead Thiosulfate	0.70	500 (227)
Ferrous Ammonium Sulfate	6.20	100 (45.4)	Lead Tungstate	0.70	500 (227)
Ferrous Chloride	6.20	100 (45.4)	Lindane	750.00	1 (0.454)
Ferrous Sulfate	6.20	100 (45.4)	Lithium Bichromate	0.98	500 (227)
			Lithium Chromate	0.98	500 (227)

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.<sup>2</sup>Spills of this magnitude must be reported.ORIGINAL  
(Red)

TABLE I. PROPOSED LIST OF HAZARDOUS SUBSTANCES (Cont'd)

Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (kilograms)
Malathion	\$750.00	1 (0.454)	Parathion	\$360.00	1 (0.454)
Maleic Acid	1.50	500 (227)	Pentachlorophenol	360.00	1 (0.454)
Maleic Anhydride	1.00	500 (227)	Phenol	75.00	10 (4.54)
Mercuric Acetate	620.00	1 (0.454)	Phosgene	1.50	500 (227)
Mercuric Cyanide	620.00	1 (0.454)	Phosphoric Acid	2.00	500 (227)
Mercuric Nitrate	620.00	1 (0.454)	Phosphorus	360.00	1 (0.454)
Mercuric Sulfate	620.00	1 (0.454)	Phosphorus Oxichloride	1.50	500 (227)
Mercuric Thiocyanate	360.00	1 (0.454)	Phosphorus Pentasulfide	7.50	100 (45.4)
Mercurous Nitrate	620.00	1 (0.454)	Phosphorus Trichloride	1.50	500 (227)
Methoxychlor	360.00	1 (0.454)	Polychlorinated Biphenyls	360.00	1 (0.454)
Methyl Mercaptan	10.00	10 (4.54)	Potassium Arsenate	6.20	100 (45.4)
Methyl Methacrylate	0.20	500 (227)	Potassium Arsenite	6.20	100 (45.4)
Methyl Parathion	36.00	10 (4.54)	Potassium Bichromate	1.50	500 (227)
Mevinphos	1000.00	1 (0.454)	Potassium Chromate	1.50	500 (227)
Nonoethylamine	10.00	100 (45.4)	Potassium Cyanide	750.00	1 (0.454)
N,N-dimethylamine	8.80	100 (45.4)	Potassium Hydroxide	4.90	100 (45.4)
Naled	360.00	1 (0.454)	Potassium Permanganate	75.00	10 (4.54)
Naphthalene	36.00	10 (4.54)	Propionic Acid	2.00	500 (227)
Naphthalenic Acid	750.00	1 (0.454)	Propionic Anhydride	2.00	500 (227)
Nickel Ammonium Sulfate	1.20	500 (227)	Propyl Alcohol	2.00	500 (227)
Nickel Chloride	1.20	500 (227)	Pyrethrins	7.50	100 (45.4)
Nickel Formate	6.20	100 (45.4)	Quinoline	750.00	1 (0.454)
Nickel Hydroxide	3.60	100 (45.4)	Resorcinol	75.00	10 (4.54)
Nickel Nitrate	1.20	500 (227)	Selenium Oxide	7.50	100 (45.4)
Nickel Sulfate	1.20	500 (227)	Sodium	7.50	100 (45.4)
Nitric Acid	10.00	100 (45.4)	Sodium Arsenate	7.50	100 (45.4)
Nitrobenzene	1.50	500 (227)	Sodium Arsenite	7.50	100 (45.4)
Nitrogen Dioxide	10.00	100 (45.4)	Sodium Bichromate	0.98	500 (227)
Nitrophenol	75.00	10 (4.54)	Sodium Difluoride	1.50	500 (227)
Paraformaldehyde	7.50	100 (45.4)	Sodium Bisulfite	1.50	500 (227)

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.<sup>2</sup>Spills of this magnitude must be reported.ORIGINAL  
(Red)

TABLE I. PROPOSED LIST OF HAZARDOUS SUBSTANCES (Cont'd)

Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)
Sodium Chromate	\$ 1.50	500 (227)	Uranyl Sulfate	\$ 1.20	500 (227)
Sodium Cyanide	750.00	1 (0.454)	Vanadium Pentoxide	6.20	100 (45.4)
Sodium Dodecylbenzene Sulfonate	75.00	500 (227)	Vanadyl Sulfate	6.20	100 (45.4)
Sodium Fluoride	1.50	500 (227)	Vinyl Acetate	8.80	100 (45.4)
Sodium Hydrosulfide	1.50	500 (227)	Xylene	2.30	100 (45.4)
Sodium Hydroxide	7.50	100 (45.4)	Xylenol	7.50	100 (45.4)
Sodium Hypochlorite	490.00	1 (0.454)	Zectran	7.50	100 (45.4)
Sodium Methylate	7.50	100 (45.4)	Zinc Acetate	6.20	100 (45.4)
Sodium Nitrate	75.00	10 (4.54)	Zinc Ammonium Chloride	6.20	100 (45.4)
Sodium Phosphate, Monobasic	1.50	500 (227)	Zinc Dichromate	6.20	100 (45.4)
Sodium Phosphate, Dibasic	0.98	500 (227)	Zinc Borate	6.20	100 (45.4)
Sodium Phosphate, Tribasic	1.50	500 (227)	Zinc Gluconide	6.20	100 (45.4)
Sodium Selenite	7.50	100 (45.4)	Zinc Carbonate	3.60	100 (45.4)
Sodium Sulfide	7.50	100 (45.4)	Zinc Chloride	6.20	100 (45.4)
Stannous Fluoride	1.50	100 (45.4)	Zinc Cyanide	360.00	1 (0.454)
Strontium Chromate	0.72	500 (227)	Zinc Fluoride	6.20	100 (45.4)
Strychnine	3.60	100 (45.4)	Zinc Formate	6.20	100 (45.4)
Styrene	1.00	100 (45.4)	Zinc Hydrosulfite	6.20	100 (45.4)
Sulfuric Acid	10.00	100 (45.4)	Zinc Nitrate	6.20	100 (45.4)
Sulfur Monochloride	1.50	500 (227)	Zinc Phenolsulfonate	6.20	100 (45.4)
2,4,5-T Acid	360.00	1 (0.454)	Zinc Phosphide	3.60	100 (45.4)
2,4,5-T Esters	360.00	1 (0.454)	Zinc Potassium Chromate	3.60	100 (45.4)
TDE	360.00	1 (0.454)	Zinc Silicofluoride	6.20	100 (45.4)
Tetraethyl Lead	360.00	1 (0.454)	Zinc Sulfate	6.20	100 (45.4)
Tetraethyl Pyrophosphate	100.00	10 (4.54)	Zinc Sulfate Monohydrate	6.20	100 (45.4)
Toluene	1.00	100 (45.4)	Zirconium Acetate	1.20	500 (227)
Toxaphene	360.00	100 (45.4)	Zirconium Nitrate	1.20	500 (227)
Trichlorfon	7.50	10 (4.54)	Zirconium Oxychloride	1.20	500 (227)
Trichlorophenol	360.00	1 (0.454)	Zirconium Potassium Fluoride	1.20	500 (227)
Triethanolamine Dodecylbenzene Sulfonate	75.00	10 (4.54)	Zirconium Sulfate	1.20	500 (227)
Triethylamine	8.80	100 (45.4)	Zirconium Tetrachloride	1.20	500 (227)
Trimethylamine	8.80	100 (45.4)			
Uranium Peroxide	0.70	500 (227)			
Uranyl Acetate	1.20	500 (227)			
Uranyl Nitrate	1.20	500 (227)			

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.<sup>2</sup>Spills of this magnitude must be reported.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 7 - Chemical Spill Prevention and Control (Cont'd)

- e. List all chemical storage tanks with capacities of 2000 gallons or greater:

<u>Chemical</u>	<u>Tank No.</u>	<u>Capacity</u>	<u>Diked?</u>	<u>Dike Adequate?</u> (Capacity & Condition)
Aniline	2-UT-7, 8, 9 10, 11-12	-	No	6 Tanks 2-UT-7, 8, 9 Not in use
H <sub>2</sub> SO <sub>4</sub> (93%)	3-UT-1	-	Yes	Earthen Dike
Fuel Oil	3-UT-2	-	Yes	Earthen Dike
H <sub>2</sub> SO <sub>4</sub> (93%)	3-UT-3	-	Yes	Earthen Dike
HNO <sub>3</sub> (98%)	3-UT-4	-	Yes	Earthen Dike
Spent Acid	3-UT-5	-	Yes	Earthen Dike
Spent Acid	3-HT-1, 2+3	-	No	Not in use (3 Tanks)
Mixed Acid	3-HT-4+5	-	No	Not in use (2 Tanks)
Benzol	3-HT-2, 8+10	-	Yes	Earthen Dike (3 Tanks) Not in use
HCl	3-HT-9	-	No	Not in use
Fuel Oil	4-UT-1+2	-	Yes	Earthen Dike (2 Tanks)
Toluene	4-UT-3	-	Yes	Earthen Dike
Powder @ 5% Soln.	3-UT-1+2	-	No	Diking in Progress
Alkyl Alcohol	3-UT-22	-	No	Diking in Progress

NOTE: See Pages 52a, b, c below as existing

Comments: While a number of storage are diked, many others are not. The quality of existing diking varies greatly.

- ★ Corrective actions (as applicable), relative to diking: A complete review of diking needs should be completed and a prioritized plan for upgrading diking and other secondary containment facilities developed.

# Part C, Section 7, Item e. (Cont'd)

<u>Chemical</u>	<u>Truck No.</u>	<u>Capacity</u>	<u>Diked</u>
Distilled water	42-VT-57	-	No
Penn-lub 502	42-VT-53	-	No
Emery	42-VT-52	-	No
Penn-lub 502	42-VT-8	-	No
Water	42-VT-11	-	No
Alkali Acid	42-VT-7	-	No
Ammonia	42-HT	-	No
Penn-lub 502	42-TW-102	-	Yes
Fuel Oil	44-HT-1	-	Yes
D.I. Water	44-HT-2	-	No
TDA	5-HT-1, 2+12	-	Yes
Carbox TDA	5-HT-22+23	-	Yes
Carbox	5-HT-17	-	No
DCB-CCl <sub>4</sub> mix	5-HT-6	-	No
Phosgene	53-HT-14+15	-	No
TDI+DCB	5-HT-16+20	-	Yes
DCB	5-HT-18+19	-	Yes
TDI	5-HT-5, 6, 7+8	-	No
DNT	5-HT-3, 4, 5+6	-	Yes
DI Water	5-HT-7+8	-	Yes
Sulfuric Acid	5-HT-9+10	-	Yes
Toluene	5-HT-11	-	Yes
DNT	5-VT-1	-	Yes
D. T.	5-HT	-	No
TDI	6-VT-9, 10, 11+12	-	No (4 Tanks)

ORIGINAL  
(Red)

(2 Tanks)

(3 Tanks)

(2 Tanks)

No. in use

(2 Tanks)

(2 Tanks)

(2 Tanks)

(4 Tanks)  
in 13/10, 13

(2 Tanks)

(2 Tanks)

# Part C, Section 9, Item e. (Cont'd)

- 125 -

<u>Chemical</u>	<u>Index No.</u>	<u>Correctly D.iked</u>	<u>D.ike Ad equi- (Correctly + Correctly Incorrectly) (Red)</u>
SO <sub>2</sub>	6-UT-14, 15+16	-	No
Caustic Soda	6-HAT-1	-	Yes
Caustic Soda	6-MT-3	-	Yes
Brine	6-MT-4	-	Yes
Urea	6-MT-5	-	Yes
D.T.	6-MT-1	-	Yes
MDA	6-MT-2	-	Yes
Caustic	6-MT-7+8	-	Yes
H <sub>2</sub>	7-GH-1	-	No
CO	7-GH-2	-	No
NH <sub>3</sub>	66-MT	-	No
Acrylonitrile	66-MT-1+2	-	Yes
Caustic	66-MT-4	-	Yes
Ethylene Glycol	66-MT-6	-	No
Cl <sub>2</sub>	66-MT-8+9	-	No
Acrylonitrile	66-MT-10+11	-	No
Urea	61-MT-2	-	No
H <sub>2</sub>	TK-6 sphere	-	No
Acrylonitrile	8-HAT-1	-	Yes
H <sub>2</sub> SO <sub>4</sub>	8-MT-1	-	Yes
DCB	8-MT-4, 5+13	-	Yes
o/cB	8-MT-6	-	Yes
Caustic	8-MT-7	-	Yes
MDA	8-MT-8	-	Yes
Acrylonitrile	8-MT-10	-	Yes

(2 Tanks)

No. Acrylonitrile D.iking

(2 Tanks)

(2 Tanks)

(3 Tanks) - D.ike ca.

D.ike caustic

D.ike caustic

Part C, Section 7, Item c. (GHT'd.)

<u>Chemical</u>	<u>Tank No.</u>	<u>Capacity</u>	<u>Diked</u>	<u>Dike Adequate</u> <u>(Capacity - Cond't)</u> <u>ORIGINAL</u> <u>(Red)</u>
Caustic	8-HT-11	-	Yes	
Formaldehyde	8-HT-8	-	Yes	
HCl	8-VT-4+5	-	Yes	(2 Tanks)
Toluene	9-VT-1	-	Yes	
HNO <sub>3</sub>	9-VT-2	-	Yes	N.T. in 4,
HNO <sub>3</sub>	9-VT-3	-	Yes	
NH <sub>3</sub>	63-H.T.	-	N.	
Brine	61-H.T.	-	N.	
Water	6-VT-1	-	Yes	N.T. in 4 (2 Tanks)
N <sub>2</sub>	6-VT-4+5	-	N.	N.T. in 4

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)ORIGINAL  
(Red)Section 7 - Chemical Spill Prevention and Control (Cont'd)

- f. Are diking sumps, pumps, valves, etc. for chemical storages listed above adequate and in good condition? No

If no - comment: Comprehensive evaluation initiated subsequent to environmental review.

Corrective actions (as applicable): To be determined by comprehensive evaluation.

- g. Is a satisfactory level of administrative control maintained over the drainage of liquids collected within the diked areas surrounding chemical storage tanks? No Are there written instructions? No

\* Comments: Written instructions should be posted at each diked area.

(Same as item on page 45)

Corrective actions (as applicable): See above

- h. Are administrative procedures and spill prevention and control facilities at chemical loading/unloading locations adequate? Yes

If no - give recommended corrective measures (as applicable):

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 7 - Chemical Spill Prevention and Control (Cont'd)

- i. Are spill prevention and control facilities in warehouses and at outside storage pad areas adequate? YES

If no - discuss: \_\_\_\_\_

Corrective actions (as applicable): \_\_\_\_\_

- j. How are tank truck, tank car, drum and cylinder heels disposed of?

Need for such disposal seems to be infrequent. Most probably the waste material would be flushed to the process sewers.

Are these procedures satisfactory? No

★ If no - give recommendations: Administrative Controls should be established to assure that suitable procedures for such disposal are determined and followed on a case-by-case basis.

- k. Can production area spills or leaks be directly discharged to the receiving waters? YES If yes - what steps are planned to prevent this from happening?

Segregation of process wastes from uncontaminated wastewater streams. Installation of final period NPDES Permit Treatment Facilities.

SCD Environmental Audit Protocol

ORIGINAL

Part C - Water Pollution Control Program Review (Cont'd)Section 7 - Chemical Spill Prevention and Control (Cont'd)

- i. Are spill prevention and control facilities in warehouses and at outside storage pad areas adequate? YES

If no - discuss: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective actions (as applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- j. How are tank truck, tank car, drum and cylinder heels disposed of?

Need for such disposal seems to be infrequent. Most probably the waste material would be flushed to the process sewer.

Are these procedures satisfactory? No

If no - give recommendations: More suitable administrative controls should be established to assure that suitable procedures for such disposal are determined and followed on a case-by-case basis.

- k. Can production area spills or leaks be directly discharged to the receiving waters? YES If yes - what steps are planned to prevent this from happening?

Segregation of process wastes from uncontaminated wastewater streams.  
Installation of final period NPDES Permit Treatment Facilities.

ORIGINAL  
(Red)SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 7 - Chemical Spill Prevention and Control (Cont'd)

1. Are Maintenance Dept. supervisory and hourly personnel well trained in the environmental precautions to be observed in draining and cleaning process vessels and lines prior to working on them? Yes

Are there written instructions? Yes

Comments: This is an on-going program in conjunction with the safety requirements for such work.

Corrective measures (as applicable): \_\_\_\_\_

- m. How are unrecoverable "off-grade" or contaminated chemicals disposed of? The need for such disposal seldom arises. If the material could not be sold to a "junk" chemical dealer, it would be disposed of off-site via an approved contractor.

Are these procedures satisfactory? Yes

If no - comment: \_\_\_\_\_

Corrective measures (as applicable): \_\_\_\_\_

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part C - Water Pollution Control Program Review (Cont'd)

Section 7 - Chemical Spill Prevention and Control (Cont'd)

n. Are pumps generally maintained in good condition? YES

Comments: No pumps in poor condition were observed during the review. However, only a relatively small portion of the production facilities were inspected.

Where does pump packing or seal leakage drain to? Process waste sewer system.

Corrective measures (as applicable): N.A.

o. Could failure of any non-contact coolers or heaters result in a direct (untreated) discharge of EPA proposed "hazardous" chemicals to the receiving waterbody? YES If yes - what can be done to

prevent this from happening? AFTER SEGREGATION OF NON-CONTACT COOLING WATER FROM THE PROCESS WASTEWATER SEWER SYSTEM IS COMPLETED (JULY 1, 1977 DEADLINE), FAILURE OF <sup>CERTAIN</sup> NON-CONTACT HEATERS OR COOLERS COULD RESULT IN DIRECT DISCHARGE OF "HAZARDOUS" CHEMICALS VIA THE "CLEAN WATER" OUTFALLS. AN EFFECTIVE PREVENTATIVE MAINTENANCE PROGRAM FOR SUCH HEATERS AND COOLERS COUPLED WITH PROCEDURES AND/OR DEVICES FOR PROMPT DETECTION OF FAILURE WILL REDUCE THE VULNERABILITY TO DIRECT DISCHARGES OF "HAZARDOUS" CHEMICALS.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 7 - Chemical Spill Prevention and Control (Cont'd)

- p. Are sewer entry points and manholes clearly identified (process, sanitary, clean water, etc.)? No

★ Comments - including any recommendations: IT is recommended that  
this be done AFTER July 1, 1977.

- q. Is there an updated sewer system map? No

★ If not - when will one be available? AFTER completion of Process/  
Cleanwater Sewer Segregation  
Comments: \_\_\_\_\_

The map available during the review was outdated  
by reason of compliance program construction work  
then in progress.

## SCD Environmental Audit Protocol

## Part C - Water Pollution Control Program Review (Cont'd)

## Section 8 - Process and Cooling Water Sources

ORIGINAL  
(Red)

- a. List sources of process and cooling water as well as typical daily usage:

<u>Source</u>	<u>Process Usage</u>	<u>Cooling Usage</u>
Ranney Well	200,000 gal/Day	2,000,000 gal/Day
		Steam - 25,000 gal/Day

NOTE: Potable water comes from Washington Lands Water Co.

- b. List typical intake analysis of the above waters:

<u>Source</u>	<u>Parameter</u>	<u>Typical Loading Range</u>	<u>Date of Last Analysis</u>
Ranney Well	PH	6.8	January, 1977  Checked + reported to W. Va. monthly on a grab sample
	TOC	86 ppm	
	COD	48 ppm	
	Total Solids	1084 ppm	
	TSS	6 ppm	
	TDS	1078 ppm	
	Chloride	247 ppm	
	p-Dichlorobenzene	0.137 ppm	February 18, 1977  March, 1977
	o-Dichlorobenzene	1.9 ppm	
	Nitrobenzene	4.6 ppm	
	CHCl <sub>3</sub>	25 ppb	
	CCl <sub>4</sub>	70 ppb	

NOTE: A separable organic layer collects in the well. It is decanted periodically (Twice in 1976, Once in 1977). Contains o + p DCB and Nitrobenzene as major parts. 1000-1500 gal organics removed per decant.

Source	Frequency of Analysis	Parameters Checked
Runney Well	Monthly grab sample	pH
		TOC
		COD
		TOT. / S. / D.
		TSS
		TDS
		CL / n. / D.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 8 - Process and Cooling Water Sources (Cont'd)

ORIGINAL  
(Red)

- d. Are there any problems associated with the intake quality of the process and cooling waters? YES

If yes - discuss: Ranney well water is high in dissolved solids and in dissolved organics. This poor quality of the water results in operating difficulties and excessive operating costs.

Corrective actions (as applicable): Use of River water in replacement of Ranney well water is being investigated

- e. Are cooling water racks used? YES

If yes - list:

<u>Rack Ident.</u>	<u>Typical Daily Thruput</u>	<u>Typical Oper. Cycles</u>	<u>Type Treating Agents Used</u>
CT 8	18,000 gpm (2644 Gal)	1-2	Chromate (44%) + Zinc (8%)
CT 67	10,000 gpm (14,444 Gal)	1-2	
CT 1	5,000 gpm (7,244 Gal)	1-2	
			Drew 734
			Bicide 201
			Sulfuric Acid

Is there excessive leakage from the cooling water system? YES

If yes - discuss: While excessive leakage was not observed during the review, this system has a history of this type problem.

Corrective actions (as applicable): STEP-BY-STEP improvement of the system has been underway for some time.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (ORIGINAL)

Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants

- a. Is there one or more on-site wastewater treatment facilities currently in operation? YES

If yes - complete the following:

<u>Nature of Facility</u>	<u>Type of Wastes Treated</u>	<u>Typical Daily Thruput</u>
<u>Lime Neutralization</u> <u>(One-Stage)</u>	<u>Acidic wastes</u>	<u>800-1200 gpm</u>
<u>Settling Pond</u>	<u>Lime treated Acid Wastes</u>	<u>800-1200 gpm</u>
<u>Equalization Pond</u>	<u>Powdered Wastes</u>	<u>200-400 gpm</u>
<u>Formaldehyde Treat TDA Wastes</u>		<u>150 gpm (when operating)</u>

- b. Are the existing wastewater treatment facilities functioning as intended? YES

If no - discuss: The above facilities are temporary in nature and will be used only until the facilities being constructed under the NPDES compliance program are completed and placed in service.

Corrective actions (as applicable) underway or planned: See above

ORIGINAL  
(Red)SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants (Cont'd)

- c. Do State or local regulations require certification of waste treatment plant operators? No

If yes - what certification is required? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Have any necessary certifications been obtained? N.A. by TSC bel.

If yes - list:

<u>Operator</u>	<u>Certificate No.</u>	<u>Date Issued</u>	<u>Expiration Date</u>	<u>Issuing Agency</u>
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<u>Russ Williamson</u>	<u>Class 2</u>			
------------------------	----------------	--	--	--

\_\_\_\_\_

\_\_\_\_\_

If necessary certifications have not been obtained - list corrective measures (as applicable) underway or planned: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- d. Are there written operating procedures for existing wastewater treatment facilities? Yes Are they adequate? Yes
- Are they posted or readily available to the operators? Yes

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants (Cont'd)

d. (Cont'd)

Comments - including recommended corrective measures (as applicable)

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e. Is housekeeping in and around existing treatment facilities satisfactory? NoComments: Lime neutralization tank area poor. Steelwork corroded, Lime & ruddles on ground.


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f. Are operators of waste treatment facilities handling sanitary wastes immunized against typhoid and tetanus? No Operators incl.OperatorImmunization DateDate Booster Due


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If no - comment (include corrective action as applicable):

When NPDES Compliance program facilities are placed, service, sanitary wastes will be commingled and treated with the inorganic process waste stream.

Immunization needs (if any) of the waste treatment plant operators should be reviewed with the Corporate Medical Dept. and the plant physician.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants (Cont'd)

ORIGINAL  
(copy)

- g. Will new wastewater treatment facilities begin operation within the next 12 months? Yes

If yes - list:

<u>Facility</u>	<u>Scheduled Start-up</u>
<u>Organic (Carbon Treatment)</u>	<u>JUNE 1, 1977</u>
<u>Inorganic (Lime Neutralization)</u>	<u>JUNE 1, 1977</u>

- h. Have operating manuals been prepared for the new facilities? No  
If not - when will they be available? ABOUT 6/1/77 Has the overall responsibility for the operational start-up been assigned? Yes  
If yes - to whom? W. S. Taylor - D. G. Knoyke

If no - when will this be done? N.A. Has a start-up supervisory crew been selected? Not yet

If yes - list:

<u>Name</u>	<u>Normal Position</u>	<u>Home Location</u>

If not - when will a start-up supervisory crew be selected? ABOUT JUNE 1, 1977.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (ORIGINAL)

Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants (Cont'd)

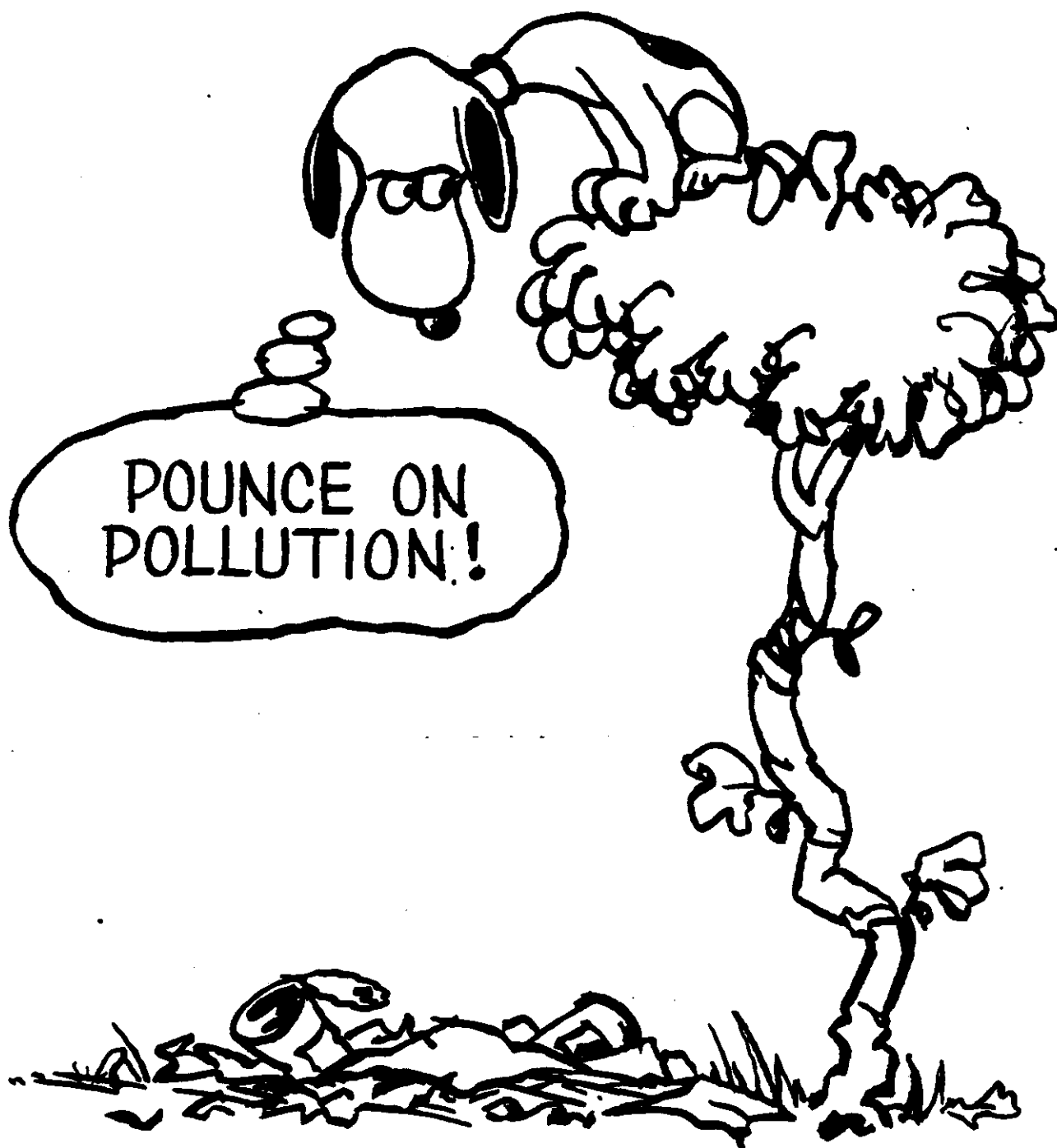
- i. Has a training program for hourly operating personnel of the new treatment facilities been developed? No

If yes - review and comment: NOT YET AVAILABLE AT TIME  
OF ENVIRONMENTAL REVIEW

If no - when will this be done? ABOUT JUNE 1, 1977

- j. Are there start-up preparations other than those mentioned above which should be started or expedited? No

If yes - comment and give recommendations: \_\_\_\_\_



SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review

Section 1 - State/Local Air Permits/Registrations

- a. What is the name, address, and telephone number of the State and/or local air pollution control agency (primary contact office)?

State - West Va. Air Pollution Control Commission

1558 Washington St., East

Charleston, W.V. 25311

Carl G. Beard II, Director

Local - Not Applicable

- b. In what Federal Air Quality Control Region is the plant located?

Steubenville - Weirton - Wheeling Interstate (W.V. portion)

- c. Which (if any) National Ambient Air Quality Standards are exceeded in the Region (Indicate "exceeded" or "not exceeded")?

	<u>Priority Class.</u>	<u>Primary Stds.</u>	<u>Secondary Stds.</u>
Particulates	<u>I</u>	<u>Exceeded</u>	
Sulfur Oxides	<u>I</u>	<u>Not-Exceeded</u>	
Carbon Monoxide	<u>III</u>	<u>Not-Exceeded</u>	
Photochem. Oxidants	<u>III</u>	<u>Exceeded</u>	
Hydrocarbons	<u>III</u>	<u>—</u>	
Nitrogen Oxides	<u>III</u>	<u>Not-Exceeded</u>	

- d. What air pollutant emissions are limited by State or local regulations?

Particulates, SO<sub>2</sub> (Fuel Combustion), Objectionable Odors, Mineral Acids (H<sub>2</sub>SO<sub>4</sub>, HCl, HNO<sub>3</sub> + H<sub>3</sub>PO<sub>4</sub>)

SCD Environmental Audit ProtocolORIGINAL  
(Red)Part D - Air Pollution Control Program ReviewSection 1 - State/Local Air Permits/Registrations (Cont'd)

d. (Cont'd)

What limitations for these pollutants are applicable to our operations?

<u>Agency</u>	<u>Pollutant</u>	<u>Applicable Limitation(s)</u>
WVAPCC	Particulates	National Ambient Air Qual Standard
	Sulfur Oxides	
	Carbon Monoxide	
	Photochemical Oxidants	
	Hydrocarbons	
	Nitrogen Oxides	
WVAPCC	Particulates	Fuel Fired Industrial
	Sulfur Oxides	Exchange - Dependent on size of unit
WVAPCC	Particulates	Process Units - Dependent Existing New
	H <sub>2</sub> SO <sub>4</sub>	20 mg/m <sup>3</sup> 35 mg/m <sup>3</sup>
	HNO <sub>3</sub>	140 mg/m <sup>3</sup> 20 mg/m <sup>3</sup>
	HCl	420 mg/m <sup>3</sup> 210 mg/m <sup>3</sup>
	H <sub>3</sub> PO <sub>4</sub>	6 mg/m <sup>3</sup> 3 mg/m <sup>3</sup>
WVAPCC	Particulates	Incineration - Dependent on amt. of waste burned / hr.

## SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

ORIGINAL  
t (Red)

## Section 1 - State/Local Air Permits/Registrations (Cont'd)

- e. Are we currently exceeding any of the above emission limitations?

No

If yes - list:

<u>Source(s)</u>	<u>Pollutant</u>	<u>Emission Limit</u>	<u>Actual Emission</u>
------------------	------------------	-----------------------	------------------------

f. Are there one or more compliance schedules relative to emissions which exceed the applicable limitations? *No*

If yes - list:

<u>Agency</u>	<u>Pollutant</u>	<u>Source</u>	<u>Schedule Milestones</u>
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ORIGINAL  
(Red)

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

- g. Are we experiencing any difficulties relative to compliance schedules? N.A. If yes - describe and list corrective measures (as appropriate) underway or planned: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- h. Are periodic progress reports required relative to the compliance schedule? N.A. If yes - have they been submitted to the involved agency as required? N.A. If yes - list the last report submitted and the next one due:

Agency

Report Due

Report Submitted

\_\_\_\_\_  
\_\_\_\_\_

If not submitted as required - explain why and list planned corrective action (as appropriate): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit Protocol

ORIGINAL

Part D - Air Pollution Control Program Review (Cont'd) (Red)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

- i. Do State and/or local regulations require registration of emission point sources? Yes

If yes - what sources? Indirect Heat Exchangers,  
Incinerators, Manufacturing Process Particulate  
Operations, Manufacturing Process Source  
Operations which emit Sulfur Dioxide  
Special Registration for ODA Process

- j. What sources have we registered (indicate whether State or local registrations)?

<u>Agency</u>	<u>Source No.</u>	<u>Description</u>	<u>Date Registered</u>
<u>WVAPCC</u>	<u>All sources as requested</u>	<u>by WVAPCC in 07-10, 1976</u>	<u>Sept. 22, 1976</u>
	<u>Letter from Agency</u>		

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

k. Have we failed to register any sources that should have been? No

If yes - list:

Source Description

Pollutant(s) Emitted


Explain failure to register and describe corrective actions (as appropriate) planned: N.A.


l. Do State or local regulations require that construction (or combined construction/operating) permits be obtained? Yes

If yes - for what? For construction, modification, or relocation of stationary sources of air pollution subject to any emission regulation promulgated by the WVAEC and which discharge, or may discharge more than 6 lbs./hr of a pollutant for which the WVAEC has established an ambient air quality standard.

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part D - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

- m. List any current State or local air pollution control construction (or combined construction/operating) permits:

<u>Permit Type</u>	<u>Agency</u>	<u>Permit No.</u>	<u>Facility</u>	<u>Date Issued</u>	<u>Expiration Date</u>
CONST.	WVAPCC	186	BURN H <sub>2</sub> in Boiler	11/14/75	NONE
CONST.	WVAPCC	143	CONV. TO BURN #2 OIL	4/16/75	NONE
CONST.	WVAPCC	156	CONV. TO BURN #2 OIL	6/26/75	NONE

- n. Have we failed to obtain any construction (or combined construction/operating) permits which we currently require? No

If yes - list:

<u>Facility</u>	<u>Date Construction Started (or will start)</u>

SCD Environmental Audit Protocol .

ORIGINAL

Part D - Air Pollution Control Program Review (Cont'd)Section 1 - State/Local Air Permits/Registrations (Cont'd)

n. (Cont'd)

Explain failure to obtain permits and describe corrective actions  
(as appropriate) planned: N.A.

o. Do State or local regulations require operating permits (other  
than construction/operating permits)? Yes

If yes - for what? Open burning

p. List any current State or local air pollution control operating  
permits held:

<u>Agency</u>	<u>Permit No.</u>	<u>Facility</u>	<u>Date Issued</u>	<u>Expiration Date</u>
WVAPCC	NONE	Fire Brigade Training	5/29/25	NONE

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

p. (Cont'd)

<u>Agency</u>	<u>Permit No.</u>	<u>Facility</u>	<u>Date Issued</u>	<u>Expiration Date</u>

q. Have we failed to obtain any required State or local operating permits? No

If yes - list the facilities or sources involved and the corrective actions (as appropriate) planned: N.A.

r. Are any lists of products made and production capacities given in State or local permit applications or registrations still correct?

If no - give details: Yes

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

r. (Cont'd)

Has the involved agency been notified? N.A.

If no - why not? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Planned corrective action (as appropriate): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

s. Does current data indicate that any emission levels are higher than shown in source registrations or permit applications? No

If yes - give details: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Has the involved agency been notified? N.A.

If no - why not? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Planned corrective action (as appropriate): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit Protocol

Part 2 - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

- t. How were emission data for registered or permitted point sources obtained (stack measurement, EPA emission factors, engineering estimates)?

<u>Emission Source</u>	<u>Pollutant</u>	<u>Data Source</u>	<u>Data Date</u>
Most Emission Data is from Engineering Estimates.			
Some is from EPA Emission Factors. Essential			
None is from actual stack measurements.			

\* Comments: A program to upgrade this data by means of a systematic stack monitoring effort should be developed.

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd) (Red)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

- u. Has the State implementation plan to attain ambient air quality standards been remanded by the USEPA for revisions? Yes

If yes - for what pollutants? Particulate Matter and Photochemical Oxidants

- v. Has the State issued, or are they preparing, proposed modifications to their air pollution control regulations? Yes

If yes - what changes applicable to our operations are proposed?

<u>Parameter</u>	<u>Proposed Changes</u>
<u>Sulfur Dioxide</u>	<u>Reduce Emission Limitation</u>
	<u>For Large Boilers (100,000 Btu/hr)</u>
	<u>- Regulation 2</u>

Comments: Not directly applicable to Woodville Nat Plant Operations

- w. Do State air regulations require the preparation of an Air Pollution Episode Action Plan describing abatement steps to be taken by the plant in the event an air pollution alert or emergency is declared? Yes If yes - has one been prepared? No

If yes - list:

<u>Date Prepared</u>	<u>Date Submitted to Agency</u>	<u>Plan Current?</u>

SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd) (Red)Section 1 - State/Local Air Permits/Registrations (Cont'd)

w. (Cont'd)

Comments: Air Pollution Episode Plans are required  
only for facilities emitting 100 tons/yr from a  
stationary source in a region classified "Marginal"  
for that pollutant.  
 If required - but not submitted or not current - list corrective  
 actions (as appropriate): Not required for Mendocillo  
North Plant.

x. Are there known or potential air pollution control problems

other than those covered above (e.g., fluoride emissions)? Yes

If yes - discuss: Potential Problems - Hydrocarbon  
Emissions from Comales + TDI, Nitrogen Oxide  
from Building 55 + SAC Unit, and Particulates  
from Carbon Regeneration Furnace. Also -  
hydrocarbons from carbon furnace when waste  
treatment plant carbon is regenerated start  
about June 1, 1977.

SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd) ORIGINAL  
(Red)Section 2 - Boiler Operations

- a. Does the Works generate all or part of the steam it uses? Yes

If yes - complete the following:

<u>Boiler No.</u>	<u>Capacity</u>	<u>Primary Fuel</u>	<u>Auxiliary Fuel</u>	<u>Means of Particulate Cont:</u>
44-SG-1	40 M Pph	Natural Gas	No. 2 Fuel Oil	None
44-SG-2	28 M Pph	Natural Gas	No. 2 Fuel Oil	None
44-SG-3	25 M Pph	Natural Gas	No. 2 Fuel Oil	None
67-HE-9	12 M Pph	Natural Gas	No. 2 Fuel Oil	None
(Howe-Baker)				

- b. Can or do any of the boilers burn materials other than fossil fuels? Yes If yes - list boilers and non-fossil fuel involved:

44-SG-1 Hydrogen

Are there any problems related to the use of non-fossil fuels? No

If yes - describe and indicate corrective measures (as appropriate) underway or planned:

## Section 2 - Boiler Operations (Cont'd)

[illegible]

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 2 - Boiler Operations (Cont'd)

- e. Are the emission measurement devices listed above operating satisfactorily? N.A.

If no - describe problems: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective measures (as appropriate): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- f. Describe the appearance of the boiler stack plumes: No visible plumes.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd) (Red) ORIGINALSection 3 - Abnormal Emissions

- a. Has an "Abnormal Emission Prevention, Control, and Countermeasure (AE-SPCC) Plan been prepared? YES Is it current (particularly with respect to regulatory agency contacts, and plant response team names and phone numbers)? Not Fully Is it readily available throughout the plant? YES

★ Comments: Some Supervisory personnel seemed unsure  
of the existence of such a plan.

- b. Does the AE-SPCC Plan appear to have any significant flaws or omissions? No

If yes - list: \_\_\_\_\_

Corrective measures (as appropriate): N.A.

SCD Environmental Audit ProtocolDate:  
(Req.)Part D - Air Pollution Control Program Review (Cont'd)Section 3 - Abnormal Emissions (Cont'd)

- c. Do State and/or local air pollution control regulations require reporting of abnormal emissions? Yes If yes - what abnormal emissions must be reported? Those which cause or contribute to objectionable odors (Regulation 12-Section 3). Used for reporting other abnormal emissions is implied rather than specified in the WVAAPC regulations. Plant policy is to report all abnormal emissions to WVAAPC.
- How are abnormal emissions to be reported? By telephone to the Wheeling Office of WVAAPC. A confirming written report would be provided if requested by the Agency.

- d. Have we submitted all required abnormal emission reports? \_\_\_\_\_

If yes - list (for past 12 months):

<u>Date</u>	<u>Pollutant</u>	<u>Amt. Emitted</u>	<u>Regulatory Limit</u>	<u>Agency</u>	<u>Date Notified</u>
7/9/76	Nitric Acid (98%)	150-200 gal fill	N.A.	WVAAPC	Phone 7/9/76
3/25/76	Nitric Acid (98%)	50-75 gal fill	N.A.	WVAAPC	Phone 3/25/76

If no - why not? \_\_\_\_\_

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd) ORIGINAL

Section 3 - Abnormal Emissions (Cont'd)

d. (Cont'd)

Corrective measures (as applicable) underway or planned: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

e. Have there been any complaints regarding emissions (including odors) from neighbors in the past 12 months? No

If yes - list:

<u>Date</u>	<u>Complaint</u>	<u>Received From</u>	<u>Action Taken</u>
-------------	------------------	----------------------	---------------------


f. Do procedures for handling neighbor complaints appear satisfactory?

Yes

If no - recommended corrective action (as appropriate): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd) ORIGINAL  
(Red)

Section 3 - Abnormal Emissions (Cont'd)

- g. Have regulatory agencies taken any enforcement action relative to abnormal emissions? No

If yes - list:

<u>Agency</u>	<u>Date</u>	<u>Action</u>	<u>Status</u>

- h. Are there any problems regarding abnormal emissions other than those covered above? No

If yes - describe: N.A.

Corrective actions (as appropriate) underway or planned: N.A.

SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd) ORIGINAL  
(Red)Section 4 - Hazardous Air Pollutants

- a. Are any of the following "hazardous air pollutants" (40 CFR 61) emitted? Asbestos No Beryllium No Mercury \_\_\_\_\_

If yes - do our emissions exceed the permitted levels?

Asbestos (from manufacturing ) - no visible emissions\*  
(40 CFR 61.22(c))

Beryllium - 10 g/24 hrs.\* (40 CFR 61.32(a))

Mercury (from chlor-alkali cells) - 2,300 g/24 hrs. (40 CFR 61.50)

\*See regulations for alternative limits

- b. If any of the three hazardous air pollutants are emitted, has the source been registered (40 CFR 61.10)? N.A. If yes - when? \_\_\_\_\_

Were emission tests made and reported (40 CFR 12, 13 & 14) \_\_\_\_\_

If yes - when? \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- c. Are the requirements of 40 CFR 61.22(d) relative to demolition operations involving asbestos containing materials readily available to plant personnel who may be involved in such activities (Maintenance, Engineering & Purchasing)? Yes Have these requirements been complied with? N.A. Are there any planned demolition operations involving asbestos or asbestos containing materials? No

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## SCD Environmental Audit Protocol

## Part E - Solid Waste Program Review

(Includes off-site and special disposal of liquid wastes)

ORIGINAL  
FILED

- a. Are semi-solid or solid wastes permanently impounded, or otherwise disposed of, on-site? YES

If yes - complete:

Waste	Approx. Amt./Yr.	Means of Disposal	Hazardous Constituents
TDI Residue (Solid)		On-site Landfill	Phthalic anhydride
MDA Residue (Tan-Like)		On-site Landfill	
Vac. Trap Tanks - B10, 52		Dumped to 003 Pond #1	DCB, CCl <sub>4</sub> , TDI
Misc. WTD Drums & Spills - B10, 52		Dumped to 003 Pond #1	MTD
Formaldehyde Tanks 5/40, 52		Retained in Poly Pond	HCHO, Toluene
Lime Treatment Sludge		003 Settling Pond #1	Mineralogical Residue
Formaldehyde Filter Cake		On-site Trash Dump	
Formaldehyde Carbon Dust from Regen.		On-site Trash Dump	
Formaldehyde Sweepings		On-site Trash Dump	
DNT Filter Candles		On-site Trash Dump	DNT
MTD-PD Catalyst 5/40, 52		Settled in 5004 Pond	MTD, Pd
Filter papers - B10, 52		Off-site for PD recovery	
Spray Carbon from HCl Sweeping - B10, 52		Dumped to on-site Trash Dump	DCB
OTDA Lines - B10, 52		On-site incineration	OTDA
MDA Sweepings - B10, 52		On-site Trash Dump	MDA
Filter candles - B10, 53, 54 + Cond. Fac.		On-site Trash Dump	TDI
Waste Oil - Maint.		Given to employees	
Phosgene off-g. Catalyst		On-site Trash Dump	
DNT Sweepings from SAC Unit		Drums stored near given	DNT, Acid
Used chemical drums & bags		On-site Trash Dump	
Reformer Catalyst		Returned to Vendor for recovery	
DCB Pumps - B10, 53		To Chem. Ind. in Model City, N.Y. for DCA recovery	DCB, T. CCl <sub>4</sub> , CH

\* Comments: Dumping or Land-filling of chemical wastes on-site should be discontinued. Steps to suitably seal existing on-site chemical Landfills or dumps should be taken.

SCD Environmental Audit ProtocolPart E - Solid Waste Program Review (Cont'd)ORIGINAL  
(Red)

## a. (Cont'd)

If current or potential problems exist - indicate corrective

\* measures (as appropriate): ① 003-#1 Pond should be cleaned out and/or suitably sealed AFTER IT IS REMOVED FROM SERVICE. ② Approx. 1000 drums of DNT skimmings from SAC unit should be sent OFF-SITE for appropriate disposal. ③ Steps should be taken to securely impound or seal TDI residue piles. Suitable off-site disposal is a possible alternative action. ④ All Trash should be disposed of OFF-SITE. ⑤ Liquid wastes remaining in EPDM and/or poly ponds after 7/1/77 may have to be disposed of OFF-SITE via contractor.

## b. If effluent treatment settling ponds are in use or planned, complete the following:

	<u>Pond</u>	<u>Lining</u>	<u>Seepage Drains</u>	<u>Estimated Remaining Useful Life</u>
Existing	003-#1	NONE	NONE	Until July 1, 1977
	003-#2	NONE	NONE	Until July 1, 1977
	EPDM	EPDM	YES with 2 sumps	INDEFINITE
	Poly	Polyethylene	NONE	Until July 1, 1977
	Comments: 003-#2 Pond has been kept in service for outfall (a "clean water" outfall) after 7/1/77. The EPDM & poly ponds had not been emptied as of 7/1/77.			
Planned	002	NONE	NONE	INDETERMINATE
	Lime pits	NONE	NONE	Former use in acid manufacturing
	Equalization	EPDM*	YES	INDETERMINATE
	Settling	EPDM*	YES	INDETERMINATE
	Tailings	Clay	NO	Estimated 5-10 Y

\* Change from originally planned clay lining with no seepage drains

SCD Environmental Audit Protocol

Part E - Solid Waste Program Review (Cont'd)

ORIGINAL  
(Red)

- c. Are regulatory agency permits required for current or planned permanent on-site impoundments or disposal of semi-solid or solid wastes? YES (For new or modified disposal facilities)

If yes - list such permits that are presently held:

<u>Waste</u>	<u>Permit No.</u>	<u>Issuing Agency</u>	<u>Date Issued</u>	<u>Expir. Date</u>
--------------	-------------------	-----------------------	--------------------	--------------------

None

- d. Are there any required permits for on-site disposal of semi-solid or solid wastes that have not been obtained? No

<u>Waste</u>	<u>Means of Disposal</u>
--------------	--------------------------

Comments: \_\_\_\_\_

Corrective measures (as appropriate) underway or planned: \_\_\_\_\_

SCD Environmental Audit ProtocolORIGINAL  
(Red)Part E - Solid Waste Program Review (Cont'd)

- e. Will semi-solid or solid wastes be generated by the NPDES compliance program treatment facilities? Yes If yes - how will they be disposed of? By permanent impoundment in a new Lined Tailings pond to be constructed in a portion of the existing lime pit.

\* Comments: Since this represents a new on-site disposal facility for solid wastes, a construction permit will have to be obtained from the West Virginia Dept of Natural Resources before installation of the Tailings pond commences.

- f. Describe how discarded laboratory samples (gases, liquid, solids) are disposed of:

Gases - Howe-Baker & Girdler process ( $\text{CH}_4, \text{CO} + \text{H}_2$ ); reformer product; cold boxes ( $\text{H}_2$ ); OASIS for  $\text{H}_2$  &  $\text{O}_2$  or MTD — vented to atmosphere

Liquids - Bottles (TDI, TDA, MTD, DNT & EFFLUENT) to Trash dump via dumpster. Some liquids go to sinks & sewers, others (acids) are saved to be treated.

Solids - Powders recovered; tars, miscellaneous solid to Trash dump.

Are the disposal methods for lab samples described above satisfactory? No If no - give corrective measures (as appropriate)

underway or planned: Trash dump is not suitable disposal for chemical wastes. Such wastes should be treated in new water treatment facility, impounded in lined ponds or disposed of off-site via approved contractor.

SCD Environmental Audit ProtocolPart E - Solid Waste Program Review (Cont'd)ORIGINAL  
(Red)

- g. Are any liquid wastes disposed of by percolation into the ground?

Yes

If yes - discuss: Although this is not done purposely, there is evidence of organic percolating into ground from unlined 003. #1 Pond and reaching Rainey Well intake.

List any corrective actions (as appropriate) needed: Problem is being evaluated. Assistance of Hydrogeological consultant will be secured.

NOTE: Gentry + Miller subsequently retained

- h. Are there known chemical burial sites within the plant boundaries?

Yes

If yes - describe and discuss:

TD1 Residue - 31 years accumulation, a very large pile - not covered with soil  
Trash Dump - Covered with earth fill to working face

Do any such burial sites pose current or potential problems? Yes

If yes - describe and indicate corrective measures (as appropriate):

Potential Leachate + run-off. Dusting from TD1 residue pile when working. Problem requires definition. (Included in item a - Pages 87 + 88)

SCD Environmental Audit ProtocolPart E - Solid Waste Program Review (Cont'd)ORIGINAL  
(Red)

h. (Cont'd)

- i. Is there any indication of ground water contamination resulting from our operations? Yes Contamination of storm water run-off? No

If yes to either or both - discuss: Refer to item g.

\* EPDM pond underdrainage should be checked for chemical compounds from pond.

Describe corrective measures (as appropriate):

- j. How is trash (non-chemical solid waste) disposed of? Trash Dump

Any problems? No If yes - discuss: Although there are

\* no current problems with the on-site trash dump, its operation should be upgraded to that of a sanitary landfill or the trash disposed off-site in an approved facility.

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part E - Solid Waste Program Review (Cont'd)

j. (Cont'd)

Corrective actions (as appropriate): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

k. Are semi-solid, solid or liquid process wastes disposed of off-site?

No

If yes - complete:

<u>Waste</u>	<u>Hauler</u>	<u>Disposal Site</u>	<u>Permit No. &amp; Issuing Agency</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Have copies of disposal site environmental permits been obtained?

N.A. Do these permits indicate that the disposal sites involved are authorized to handle the type wastes we are sending them?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Have we inspected the disposal site(s)? N.A.

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part E - Solid Waste Program Review (Cont'd)

1. Are there any known or potential problems involving disposal of solid, semi-solid or special liquid wastes other than those covered above? No

If yes - discuss: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective measures (as appropriate): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ORIGINAL  
10/10

SCD Environmental Audit Protocol

Part F - Drinking Water Supply Review

- a. Does any portion of the plant's drinking water supply come from on-site wells or surface water sources? No If yes - have we begun to monitor for coliform bacteria and nitrate(N)? N.A. and turbidity (if surface source)? N.A.

If yes - when? N.A.

Note: 40 CFR 141 requires monitoring to commence June 24, 1979.

- b. If monitoring of on-site drinking water supplies has begun - list:

<u>Parameter</u>	<u>Max. Level Found</u>	<u>No. of Tests Run</u>	<u>Sampling Freq.</u>
<u>Coliform Bacteria</u>			
<u>Nitrate(N)</u>			
<u>Turbidity</u>			

- c. Are there any known or potential problems associated with the on-site drinking water supply? N.A.

If yes - discuss: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part F - Drinking Water Supply Review (Cont'd)

c. (Cont'd)

Corrective actions (as appropriate) underway or planned: N.A.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit Protocol

Part G - Marine Transfer Operations Review

ORIGINAL  
A

The SCD Environmental Audit Protocol for Marine Transfer Operations is being prepared separately. It will be issued as a supplement to this Manual.

SCD Environmental Audit ProtocolPart H - Action List of Review Team RecommendationsORIGINAL  
(Red)

<u>Page</u>	<u>Item</u>	<u>Recommendation</u>	<u>Status</u>
4	1	Improve overall level of plant housekeeping.	
4	3	Current copies of CFR Title 40 and W.Va. administrative regulations should be obtained.	
4	4	Filing system for environmental correspondence and documents should be improved.	
5	5	Environmental training of hourly and supervisory personnel should be accelerated.	
6	7d	At least one member of the plant environmental staff should receive special training in emission monitoring.	
8	j	Area around old Outfall 003 should have paper and trash removed.	
12	s	Remove warehouse and sanitary waste contaminants from new Outfall 004 (now designated as Outfall 005).	
13	u	Advise USEPA Region III and WVDNR of current products and production capacities.	Done by letter dated June 1, 19
13	v	Fully characterize treated process waste after installation of new treatment facilities. Amend NPDES permit application to reflect this characterization.	
14	x	Check indoor transformers for possible use of PCB's.	
15	y	Check chemical listing prepared by plant for TSCA purposes against current NRDC list of "toxic Chemicals."	
17	c	Plant environmental personnel should increase their familiarity with applicable state water pollution control laws and regulations.	

SCD Environmental Audit ProtocolPart H - Action List of Review Team Recommendations (Cont'd)

<u>Page</u>	<u>Item</u>	<u>Recommendation</u>	<u>Status</u>
26	d	Periodically check fecal coliform levels in discharge from new waste treatment facilities.	
27	f	Grating over sump at Bldg. 100 should be replaced.	
30	e	Flow measuring device at the process waste outfall should be calibrated every six months and a record maintained.	
31	f	Parshall flume throats and the stilling chambers before the flumes should be kept clean of deposited silt.	
33	l	Check suitability of polyethylene sample containers for use with effluent samples containing organic pollutants.	
35	r	Record of conductivity meter calibration should be kept.	
45	l	Investigate means of improving spill prevention and containment facilities around oil loading/unloading stations.	
45	m	Written control procedures covering the drainage of liquids collected within diked areas should be posted.	
52	e	A comprehensive review of diking needs should be completed and a prioritized plan for up-grading diking and other secondary containment facilities developed.	In progress.
54	j	Administrative control procedures should be established covering disposition of tank truck, tank car, drum and cylinder heels.	
57	p	All sewer entry points and man-holes should be clearly identified.	

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part H - Action List of Review Team Recommendations (Cont'd)

<u>Page</u>	<u>Item</u>	<u>Recommendation</u>	<u>Status</u>
57	q	An updated sewer system map should be prepared.	
63	f	Possible immunization needs of waste treatment plant operators should be checked with Corporate Medical and Plant physician.	
76	t	A program to upgrade emission data by systematic stack monitoring should be developed.	
82	a	The abnormal emission prevention control and countermeasure plan should be reviewed with all plant personnel.	
87	a	On-site dumping of chemical waste should be stopped. Steps to suitably seal existing chemical landfills or dumps should be taken.	
88	a	(Cont'd) 003 - No. 1 pond should be cleaned and/or suitably sealed. Approximately 1,000 drums of DNT skimmings from SAC unit should be sent off-site for appropriate disposal. Steps should be taken to securely impound or seal TDI residue piles (suitable off-site disposal is a possible alternative action). All trash should be disposed of off-site. Plans for treatment and/or disposal of waste remaining in EPDM and poly ponds should be developed.	
90	e	A construction permit application should be submitted to the WVDNR for the proposed tailings ponds for sludge from the new waste treatment facility.	
92	i	<del>des</del> Underdrainage from EPDM pond should be checked for presence of chemical compounds from pond.	

ORIGINAL  
(Red)

SCD Environmental Audit Protocol  
and Report

Audit Team: RL Fawcett 3-16-77  
(Signatures and Date)

S Van Epps 3/16/77

K. Hearn 3/16/77

S. J. P. 3/16/77

D. P. DeNun 3/16/77

Report approved prior to sending  
to Moundville South  
10-12-77 B F Sawdoff

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

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February, 1977

SCD Environmental Audit Protocol

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(Red)

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Supplementary Information Provided

NRDC "Toxic Chemicals" List	15a
USEPA Approved Monitoring Procedures (40 CFR 136)	34a
USEPA Guidelines for Oil SPCC Plans (40 CFR 113.7)	43a
USEPA Proposed "Hazardous" Chemicals List (40 CFR 116 & 118)	51a

February, 1977

# Environmental Policy

The purpose of this statement is to reaffirm the policy of Allied Chemical, which has been effective since 1967, with regard to protection of the environment. It is the policy of Allied Chemical:

- ☐ To take all practicable measures necessary to prevent or abate air and water pollution resulting from its operation.
- ☐ To insure that qualified personnel, with clearly defined responsibilities and commensurate authority, are assigned to bring and keep pollution under control.
- ☐ To cooperate fully with governmental agencies charged with pollution control.
- ☐ In plant communities, to cooperate with municipal governments in pollution abatement.
- ☐ To seek to extend scientific and technical competence in pollution control at all levels within the company.
- ☐ To conduct appropriate research and engineering investigations in air and water quality control, and to encourage such research by others outside the company.
- ☐ To contribute to the development of sound, equitable and realistic standards, laws and ordinances regarding pollution.
- ☐ To participate with other companies, organizations and the public in efforts to prevent and eliminate pollution.
- ☐ To inform employees and the public of progress in the company's anti-pollution efforts.
- ☐ To maintain close liaison with organizations engaged in pollution abatement, with a view toward improving the company's anti-pollution program.

It is the obligation of every employee of the Corporation to adhere to the spirit as well as the letter of this policy.



John T. Connor  
Chairman



Robert E. Mulcahy  
President

June 1976

SCD Environmental Audit ProtocolORIGINAL  
(Red)Part A - General Information

1. Plant Moundsville (South)
2. Date(s) of Audit March 15, 16 & 17, 1977
3. Auditors R. L. Fawcett N. E. Stewart (observer)  
E. J. Shields \_\_\_\_\_  
R. Sobel \_\_\_\_\_  
G. D. Van Epps (observer)
4. Plant Address Route No. 2  
Drawer "D"  
Moundsville West Va. 26041
5. Plant Telephone No. 304-245-5670
6. Plant Manager Charles A. Raymond
7. Environmental Staff D. P. DeNove  
 (other than analytical) \_\_\_\_\_
8. Receiving Waters Ohio River River Mile 106  
 Water Quality Classification <sup>(a)</sup> Uses: A, B1, B2, B3, C, D & E  
 Source of Classification West Virginia Administrative Regs - 1977
9. Nature of surrounding area (urban, suburban, rural, etc.)  
Rural
10. Plant Census: Hourly 192 Salaried 176 (Total - in comb. with North P.)
11. Year in which Works began operations: \_\_\_\_\_

(a) Uses: A - Water Contact Recreation  
 B1 - Public Water Supply  
 B2 - Industrial Water Supply  
 B3 - Agricultural Water Supply  
 C - Propagation of Aquatic Life  
 D - Water Transport, Cooling & Power  
 E - Treated wastes, Transport and assimilation

SCD Environmental Audit Protocol

Part A - General Information

ORIGINAL  
(Red)

12. Products (all - but do not list individual blends, strengths, etc. separately) and typical annual production of each in net tons:

Not covered by this review

13. By-products and typical annual production of each in net tons:

Not covered by this review

14. Intermediates and typical annual production of each in net tons:

Not covered by this review

SCD Environmental Audit Protocol

(Red)

Part A - General Information

15. Raw Materials and typical annual consumption of each in net tons:

NOT covered by this review	

16. Catalysts and typical annual consumption of each in net tons:

NOT covered by this review	

17. Additives, treating agents and other chemicals used in plant (excluding lab) - indicate typical annual usage in net tons:

NOT covered by this review	

SCD Environmental Audit Protocol

Part B - Plant Administration Review

Rating Levels: 1 - Excellent    2 - Good    3 - Fair    4 - Poor

<u>Item</u>	<u>Rating</u>	<u>Remarks</u>
1. <u>Plant Appearance</u>		
a. Housekeeping	1 (2) 3 4	
b. Painting	1 2 (3) 4	
c. Landscaping	1 (2) 3 4	
d. Overall Impression	1 (2) 3 4	
2. <u>Plant Security</u>		
a. Forced Entry	1 2 (3) 4	
b. Accidental Entry	1 (2) 3 4	
3. <u>Environmental Library</u>		
a. Federal Regulations	1 (2) 3 4	
b. State Regulations	1 (2) 3 4	
c. Local Regulations	1 2 3 4	Not Applicable
4. <u>Environmental Files</u> (other than analytical & monitoring)		
a. General Completeness	(1) 2 3 4	
b. General Orderliness	(1) 2 3 4	
c. Internal Correspondence	(1) 2 3 4	
d. Reports of Regulatory Agency Inspections	(1) 2 3 4	

ORIGINAL  
(Red)

# SCD Environmental Audit Protocol

## Part B - Plant Administration Review (Cont'd)

<u>Item</u>	<u>Rating</u>	<u>Remarks</u>
-------------	---------------	----------------

### \* 5. Environmental Training

a. Process Training of Operators	1 2 ③ 4	} Environmental Training of local personnel should be intensified.
----------------------------------	---------	--

b. Environ. Training of Operators & Mechanics	1 2 ③ 4
---	---------

- Spill prevention & response?
- Formal training sessions?
- New operators?
- Regularly updated?

c. Environ. Training of Supervisors	1 ② 3 4
-------------------------------------	---------

### 6. Public Relations

a. Display of Corporate Environ. Policy Statement	1 ② 3 4
---	---------

b. Participation in trade and environmental associations	① 2 3 4
--	---------

c. Participation in local civic groups and functions	1 ② 3 4
--	---------

d. Response to complaints from neighbors	1 ② 3 4
--	---------

e. Contacts with local regulatory agency staffs	① 2 3 4
---	---------

{ West Va. Mfg's Assoc. Envir. Committee  
Ohio Valley Ind. Envir. Adm. Comm.  
Water Pollution Control Federation  
Chamber of Commerce  
Junior Achievement  
High School Programs

FINAL  
(Red)

SCD Environmental Audit Protocol  
Part B - Plant Administration Review (Cont'd)

7. Environmental Staffing

a. <u>Name</u>	<u>Formal Education</u>	<u>Total Industrial Experience (Yrs)</u>	<u>Environmental Experience (Yrs)</u>	<u>Special Environmental Training</u>
D.P. DeN...	B.S. Chem	23		

<u>Item</u>	<u>Rating</u>	<u>Remarks</u>
b. Adequacy (number and ability)	1 (2) 3 4	Ability - good, number adequate
c. Reporting Relationships	1 (2) 3 4	
d. Comments		

8. Communications with Divisional Environmental staff (including prior clearance of all contacts with regulatory agencies originated by Works)

1 (2) 3 4

original  
filed

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program ReviewSection 1 - NPDES Permit

- a. Permit Number WY 0004405
- b. Issuing Agency USEPA Region III
- c. Certifying Agency (if any) W.Va. Div. of Water Resources, Dept. of Natural Resources
- d. Enforcement Agency or Agencies USEPA Region III

- e. Effective Date \_\_\_\_\_
- f. Expiration Date December 14, 1979
- g. Was the permit adjudicated? Yes

If yes - indicate:

Date requested 6/28/77 Stipulation signed by Allied? Yes Date 5/13

Still open issues (if any) None

Amended permit received No Date \_\_\_\_\_

h. Current Outfalls:

<u>Outfall No.</u>	<u>Description (Major Component Streams)</u>
<u>001</u>	<u>Non-Contact Cooling Water - 1.97 MGD (once-th</u>
	<u>Contact Process + Cooling Water - 7.58 MGD (once-th</u>
	<u>Indirect Process Water - 0.52 MGD</u>
	<u>Boiler Blow-Down - 0.65 MGD</u>
	<u>Maintenance - 0.04 MGD</u>
	<u>Air Pollution Control - 0.01 MGD</u>
	<u>Sanitary Wastes - 0.08 MGD</u>

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

i. Appearance and physical characteristics of current outfalls:

<u>Outfall No.</u>	<u>Wastewater Stream (Oil, Scum, Odor, Color, Solids, High Temperature, Etc.)</u>
--------------------	---

001	No visible pollution in wastewater
-----	------------------------------------

Comments: \_\_\_\_\_

j. Appearance of surrounding shore area (current outfalls):

<u>Outfall No.</u>	<u>Shore Appearance (Debris, Scum, Vegetation, Etc.)</u>
--------------------	--

001	Neat + Clean
-----	--------------

★ Comments: Effluent ditch area upstream of weir should have silt removed.



SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

n. Are all daily maximum excursions reported as required by permit?

N.A. If no - why? \_\_\_\_\_

What corrective actions (as appropriate) are planned? \_\_\_\_\_

o. Has the USEPA taken any enforcement action (including letters)?

N.A.

If yes, give details as follows:

<u>Date of Action</u>	<u>Nature</u>	<u>Response Date</u>	<u>Current Status</u>

p. Compliance Program Progress Reports submitted as required by permit:

Yes

If no - discuss discrepancies and planned corrective measures (as appropriate): \_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

ORIGINAL  
(Red)

- q. Compliance program milestone dates missed or anticipated to be missed:

<u>Milestone</u>	<u>Permit</u>	<u>Dates</u> <u>Actual</u>	<u>Agency Notified</u>
<u>Completion of Construction</u>	<u>5/1/77</u>	<u>NOT KNOWN - ANTICIPATED</u>	

Plant staff concerned about meeting NPDES  
completion of construction milestone.

Corrective measures (as appropriate) planned and/or taken:

OVERTIME CONSTRUCTION EFFORT IN PROGRESS AT TIME  
OF REVIEW.

- r. Are all discharges to a waterbody, including those which flow only in wet weather, registered as outfalls? NO

If not - give details Drainage Ditch along side of  
main plant road has some process wastes going  
into it.

Corrective measures (as appropriate) planned Being Taken care  
of as portion of NPDES compliance program.  
The drainage ditch will be sumped and directed  
to outfall 001.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd) <sup>Original</sup> ~~(Red)~~Section 1 - NPDES Permit (Cont'd)

- s. Have all outfalls been characterized regarding their pollutant loading? Not Fully

If no - why? Trace quantities of specific chlorinated hydrocarbons were below detection level of analytical procedures used in 1971.

Planned corrective actions (as appropriate): Program of effluent characterization for chlorinated hydrocarbon in progress at time of review. Data reported to EPA III in subsequent "304" Reports.

- t. Do wastewaters from adjoining properties flow into our sewer systems? Yes If yes - do they pose an actual or potential non-compliance problem? (discuss, including feasibility of elimination)

Storm water drainages from adjacent open areas and highway does not appear to pose problems.

- u. Are products made and production capacities given in COE or NPDES permit application still correct? Yes

If no - give details: \_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 1 - NPDES Permit (Cont'd)

u. (Cont'd)

Has the NPDES permit issuing agency been notified? N.A.

If no - why not? \_\_\_\_\_

Planned corrective action (as appropriate): \_\_\_\_\_

v. Does current data indicate that any parameter levels in discharge are higher than shown in COE or NPDES permit application? Yes

If yes - give details: Chlorinated Hydrocarbons - see item 5 on Page 12.

Has NPDES permit issuing agency been notified? Yes

If no - why not? \_\_\_\_\_

Planned corrective action (as appropriate): NPDES Compliance program includes Distillation column for removal of Chlor. Hydrocarbons and other organic chemicals from CWP process wastes.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) ORIGINAL

Section 1 - NPDES Permit (Cont'd) (Red)

w. Are there any modifications of the permit which have been, or should be, requested? No

If yes - describe and give status: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

x. Are any of the following chemicals known to be present (found using plant's current analytical capabilities), or believed to be present, in the wastewater discharge? No

If yes - indicate loading ranges in ppm and PPD.

- Benzidine \_\_\_\_\_
- Aldrin/Dieldrin \_\_\_\_\_
- Endrin \_\_\_\_\_
- Toxaphene \_\_\_\_\_
- Polychlorinated Biphenyls (PCB) \_\_\_\_\_
- DDT, DDD & DDE \_\_\_\_\_

What actions (as appropriate) to eliminate them from our discharge are underway or planned? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## SCD Environmental Audit Protocol

## Part C - Water Pollution Control Program Review (Cont'd)

## Section 1 - NPDES Permit (Cont'd)

- y. Are any of the NRDC "Toxic Chemicals" (see attached list, Pages 15a and 15b) known (found using plant's current analytical capabilities) believed to be present in our effluent? Yes

If yes - describe loadings:

Parameter	Conc. Range	PPD Range	Comments
<u>CCl<sub>4</sub></u>	<u>0.18 <math>\mu</math>m</u>	<u>15</u>	<u>Possibly other CHCl<sub>3</sub> also</u>
<u>Chloro. Ethanes</u>			
<u>C<sub>12</sub></u>	<u>95 <math>\mu</math>m</u>	<u>8000</u>	<u>As hydrochloric</u>
<u>CHCl<sub>3</sub></u>	<u>0.5 <math>\mu</math>m</u>	<u>38</u>	<u>may be higher</u>
<u>Ca</u>	<u>&lt;0.02 <math>\mu</math>m</u>	<u>1.5</u>	
<u>CH<sub>2</sub>Cl</u>			
<u>CH<sub>2</sub>Cl<sub>2</sub></u>	<u>2.0 <math>\mu</math>m</u>	<u>165</u>	<u>may be higher</u>
<u>14</u>	<u>0.002 <math>\mu</math>m</u>	<u>0.2</u>	
<u>2</u>	<u>0.1</u>	<u>9</u>	

- z. Have NPDES compliance/surveillance inspections been made by the USEPA, State or local agencies? Yes If yes - list:

Agency	Date(s)	Significant Discrepancies Found	Corrective Measures Taken
<u>EPA III</u>	<u>7/20/76</u>	<u>Unsanitary Drains</u>	<u>NPDES Compliance E</u>
		<u>CHP Acc. Drains to UDN 012</u>	<u>Sewer plugged</u>
		<u>Run-off from Coal Pile to UDN 012</u>	<u>Monitoring Station moved</u>
		<u>Flow Measurement Float</u>	<u>Fixed</u>
		<u>on 001 Stack</u>	

NRDC "Toxic Chemicals" List

-15a-

<u>Compound</u>		<u>Compound</u>	
001 Acenaphthene	_____	027 Cyanides	_____
002 Acetone	_____	028 DDT and metabolites	_____
003 Acrolein	_____	029 Dialkyl ethers	_____
004 Acrylonitrile	_____	030 Dibenzofuran	_____
005 Aldrin/Dieldrin	_____	031 Dichlorobenzenes	_____
006 N-Alkanes (C10-C30)	_____	(1,2-, 1,3-, and	_____
007 Antimony and compounds*	_____	1,4-dichlorobenzenes)	_____
008 Arsenic and compounds	_____	032 Dichlorobenzidine	_____
009 Asbestos	_____	033 Dichloroethylenes	_____
010 Benzene	_____	(1,1- and	_____
011 Benzidine	_____	1,2-dichloroethylene)	_____
012 Beryllium and compounds	_____	034 2,4-dichlorophenol	_____
013 Biphenyl	_____	035 Dichloropropane and	_____
014 Cadmium and compounds	_____	dichloropropene	_____
015 Carbon tetrachloride	_____	036 2,4-dimethylphenol	_____
016 Chlordane	_____	037 Dinitrotoluene	_____
(Technical mixture and	_____	038 Diphenyl ether	_____
metabolites)	_____	039 Diphenylhydrazine	_____
017 Chlorinated benzenes	_____	040 Endosulfan and metabolites	_____
(Other than dichlorobenzenes)	_____	041 Endrin and metabolites	_____
018 Chlorinated ethanes	_____	042 Ethylbenzene	_____
(including 1,2-dichloroethane,	_____	043 Fluoranthene	_____
1,1,1,-trichloroethane, and	_____	044 Haloethers (other than	_____
hexachloroethane)	_____	those listed elsewhere:	_____
019 Chlorine	_____	includes chlorophenylphenyl	_____
020 Chloroalkyl ethers	_____	ethers, bromophenylphenyl ether	_____
(chloromethyl, chloroethyl,	_____	bis (dichloroisopropyl)	_____
and mixed ethers)	_____	bis-(chloroethoxy) methane and	_____
021 Chlorinated naphthalene	_____	polychlorinated diphenyl	_____
022 Chlorinated phenols	_____	ethers)	_____
(Other than those listed	_____	045 Halomethanes (other than	_____
elsewhere; includes	_____	those listed elsewhere:	_____
trichlorophenols and	_____	includes methylene chloride	_____
chlorinated cresols)	_____	methylchloride, methylbromide,	_____
023 Chloroform	_____	bromoform, dichloro-	_____
024 2-chlorophenol	_____	bromomethane, trichloro-	_____
025 Chromium and compounds	_____	fluoromethane,	_____
026 Copper and compounds	_____	dichlorodifluoromethane)	_____
		046 Heptachlor and metabolites	_____
		047 Hexachlorobutadiene	_____

\*As used throughout this list, the term "compounds" shall include organic and inorganic compounds.

ORIGINAL  
(Red)

<u>Compound</u>		<u>Compound</u>	
048 Hexachlorocyclohexane (all isomers)	_____	074 Toxaphene	_____
049 Hexachlorocyclopentadiene	_____	075 Trichloroethylene	_____
050 Isophorone	_____	076 Vinyl Chloride	_____
051 Lead and compounds	_____	077 Zinc and compounds	_____
052 Mercury and compounds	_____		
053 Methyleneethyl ketone	_____		
054 Naphthalene	_____		
055 Nickel and compounds	_____		
056 Nitrites	_____		
057 Nitrobenzene	_____		
058 Nitrophenols (including 2,4-dinitrophenol, dinitrocresol)	_____		
059 Nitrosamines	_____		
060 Pentachlorophenol	_____		
061 Phenol	_____		
062 Phthalate esters	_____		
063 Polychlorinated biphenyls (PCBS)	_____		
064 Polynuclear aromatic hydro- carbons (including benzantracenes, benzopyrenes, benzofluorathene, chrysenes, dibenzanthracenes, and indenopyrenes)	_____		
065 Secondary amines	_____		
066 Selenium and compounds	_____		
067 Silver and compounds	_____		
068 Styrene	_____		
069 Terpenes	_____		
070 2,3,7,8,-Tetrachlorodi- benzo-p-dioxin (TCDD)	_____		
071 Tetrachloroethylene	_____		
072 Thallium and compounds	_____		
073 Toluene	_____		

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) ORIGINAL

Section 1 - NPDES Permit (Cont'd)

z. (Cont'd)

Were aliquots of agency samples taken? Yes

If no - why not? No

Comments: Unable to obtain analytical results from EPA III. Had a high pH excursion during Agency visit (on night shift)

aa. Are there current or potential problems associated with the NPDES program which are not covered above? Yes

If yes - discuss (include any appropriate corrective measures underway or planned): The discharge of calcium hypochlorite poses a potential problem. EPA III and/or WUDNR may limit discharge of this material in the future.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 2 - State Water Pollution Control Permits

- a. What is the name, address, and phone number of the State Water Pollution Control Agency (primary contact office)?

West Virginia Dept. of Natural Resources

Division of Water Resources

1201 Greenbrier St., East

Charleston, W. Va. 25311

Arden L. Cunningham & Dwight O'Scane - Permits

- b. Does the State Water Pollution Control Agency require construction permits that are applicable to the plant? Yes

If yes - for what? Combined construction, operation and discharge. Also for well installation of water.

- c. Does the State Water Pollution Control Agency require operating permits that are applicable to the plant? Yes

If yes - for what? Wastewater Treatment Facilities + well installation of water. Plant personnel were uncertain of applicable State laws and regulations. These should be reviewed and appropriate working files established.

- d. List current State Water Pollution Control Permits:

Type	Permit No.	Date Issued	Expiration Date	Facility Covered
Discharge	4309	11/8/71	None	Existing plant
Well Installation	4038	10/1/70	9/30/71	Being Operated

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 2 - State Water Pollution Control Permits (Cont'd)

- e. Have all required State permits been obtained or applied for? No  
 If not - give details including corrective actions (as appropriate) that are underway or planned: Application for renewal of wet inspection permit submitted to ST-TC 1/24/77. IT had been thought that this permit was superseded by the discharge permit (No. 4309)
- f. Do State Water Pollution Control permits or regulations require that the Agency be notified of changes in application data such as production capacities and pollutant loadings? Yes  
 If they do - is application data current and correct? Yes  
 If not - give details including corrective actions (as appropriate) that are underway or planned: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- g. Have there been any excursions against the State operating permit which were not also NPDES permit excursions? No  
 If so, give the excursion history since permit issuance:

<u>Parameter</u>	<u>Excursions (number)</u>
_____	_____
_____	_____
_____	_____
_____	_____

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 2 - State Water Pollution Control Permits (Cont'd)

g. (Cont'd)

Were the above excursions properly reported? N.A.

If not - why? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective actions (as appropriate) underway or planned? N.A.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

h. Has the State taken any enforcement action (including letters? No

If yes - give details as follows:

<u>Date of Action</u>	<u>Nature</u>	<u>Response Date</u>	<u>Current Status</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

\_\_\_\_\_

\_\_\_\_\_

i. Does the State require submittal of effluent monitoring reports

other than those required by the NPDES permit? Yes

If yes - describe monthly effluent report providing monthly average data on specified parameters

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) ORIGINAL

(Red)

Section 2 - State Water Pollution Control Permits (Cont'd)

i. (Cont'd)

Have these reports been promptly submitted when due? Generally

If not - why? Occasionally Delayed Due To Press of  
Other work.

Corrective actions (as appropriate) underway or planned: State  
has never expressed concern regarding this  
occasional tardiness.

j. Does the State require submittal of compliance program progress  
reports other than those required by the NPDES permit? No

If yes - describe \_\_\_\_\_

Have they been promptly submitted when due? N.A.

If not - why? \_\_\_\_\_

Corrective actions (as appropriate) underway or planned: N.A.

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part C - Water Pollution Control Program Review (Cont'd)

Section 2 - State Water Pollution Control Permits (Cont'd)

- k. Are there any other known problems or potential vulnerabilities related to State Water Pollution Control Regulations and/or permits

Yes

If yes - describe: Possible future need to neutralize  
and sewer excess by-product HCl could pose  
problems relative to chloride and TDS.

Corrective actions (as appropriate) underway or planned: Problem  
will be discussed with regulatory agencies if  
and when it develops.

SCD Environmental Audit Protocol

(incd)

Part C - Water Pollution Control Program Review (Cont'd)

Section 3 - Municipal Wastewater Permit

Not Applicable

- a. Are wastewaters discharged to a municipal waste facility? No

If yes - what facility? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- b. Does the municipal facility issue permits to those industrial locations discharging to it? N.A.

If yes - do we have such a municipal permit? \_\_\_\_\_

If yes - list:

<u>Permit No.</u>	<u>Date Issued</u>	<u>Date Expires</u>
_____	_____	_____
_____	_____	_____

If no - why not? - explain \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as appropriate) that are underway or planned:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- c. Do the municipal permit and municipal regulations establish discharge loading limitations? N.A.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 3 - Municipal Wastewater Permit (Cont'd)

N.A. Applicable

c. (Cont'd)

If yes - list:

Parameter

Limitations


d. Have we exceeded those limitations? N.A.

If yes - list the excursion history since the permit was issued or the regulations became effective.

Parameter

No. of Excursions


e. Are these excursions required to be reported? N.A. Have we reported them? N.A. If yes - list:

Parameter(s) Date Reported Date & Nature of Municipal Response (if


SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) ORIGINAL  
Red

Section 3 - Municipal Wastewater Permit (Cont'd)

Not Applicable

e. (Cont'd)

Indicate corrective measures (as appropriate) taken or planned:

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f. Does the municipality impose a surcharge for certain parameters above an established level? N.A. If yes - list:

<u>Parameter</u>	<u>Surcharge Rate</u>	<u>Surcharge Billed (Past 12 Months)</u>
------------------	-----------------------	--


g. What is the total billing (including surcharges) from the municipal facility for the past 12 months? N.A.

h. Do the municipal permit or the regulations contain any troublesome terms or conditions other than the discharge limitations? N.A.  
If so - discuss \_\_\_\_\_

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1000

**Appendix**

Not Applicable

- If yes - when?** \_\_\_\_\_

- If not - has the municipal facility been advised the the changes?

- \_\_\_\_\_

- (If not this should be done)

- If yes - discuss (include any appropriate corrective measures underway or planned):

- \_\_\_\_\_

- 

-

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'g) <sup>ORIGINAL</sup> (Red)Section 4 - Sanitary Wastes

a. Are sanitary wastes disposed of other than to a municipal treatment facility? Yes

If yes - are they presently treated on-site? Yes

How? By Septic Tank Discharging To nearest sewer.

b. Does the present treatment and/or disposal of sanitary wastes meet State or local regulatory requirements? No

What are these requirements? Equivalent To secondary Treatment.

c. Is the treatment and/or disposal of sanitary wastes specifically covered by a permit? No

If yes - what permit (or permit section)? Application submitted

1-26-77 for State permit covering packaged secondary unit (part of NPDES Compliance program) noted septic tank use.

d. Are any changes or improvements in the treatment of sanitary wastes planned? Yes

If yes - describe Packaged Secondary Treatment unit.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) <sup>ORIGINAL</sup>  
(Red)

Section 4 - Sanitary Wastes (Cont'd)

- e. Has there been any regulatory agency enforcement actions (including letters) specifically relating to the treatment and/or disposal of sanitary wastes? Yes

If yes - describe as follows:

<u>Nature of Action</u>	<u>Date</u>	<u>Date of Response</u>	<u>Current Status</u>
<u>Verbal request for P/W Application submitted</u>	<u>1/20/77</u>	<u>Static Response</u>	<u>Pending</u>
<u>Secondary Treatment</u>			

Comments - including corrective measures (as applicable) taken, underway or planned: Packaged secondary treatment unit being installed.

- f. Are there any other known current or potential problems concerning sanitary wastes other than those covered above? Yes

If yes - discuss (1) Another small septic tank serves the lime slurry pump house and discharges to the tail pile. (2) Sanitary facilities at new waste treatment facility are not scheduled to tie in to packaged secondary unit.

Corrective actions (as applicable) underway or planned: Plan to investigate both matters and determine proper courses of action.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 5 - Monitoring

- a. List permit monitoring requirements currently in effect:

<u>Permit</u>	<u>Outfall(s)</u>	<u>Parameter</u>	<u>Sampling Freq.</u>	<u>Sample Type</u>
NPDES	001	Flow	1/week	observed
		TSS	1/week	24 hr. Comp.
		Total Solids	1/month	" "
		Manganese	1/week	" "
		Mercury	1/week	" "
		Lead	1/month	" "
		BOD <sub>5</sub>	1/week	" "
		Temperature	1/week	"i-s"
		Cyanide	1/month	24 hr. comp.
		Arsenic	1/month	" "
		pH	1/week	Grab
		Bio-Assay	Quarterly	24 hr. comp.
State	001	Chlorides	Monthly	Composite
		Total Solids	"	"
		Dis. Solids	"	"
		TSS	"	"
		Hardness	"	"
		pH	"	"
		Acidity	"	"
		Alkalinity	"	"
		Mercury	"	"

SCD Environmental Audit Protocol

(ORIGINAL

Part C - Water Pollution Control Program Review (Cont'd)

Section 5 - Monitoring (Cont'd)

- b. Are all NPDES, State and municipal permit parameters being monitored as prescribed by the permits? Yes

List exceptions since effective date of permit:

<u>Permit</u>	<u>Outfall(s)</u>	<u>Parameter</u>	<u>No. of Exceptions</u>	<u>Reported to Agency (how)</u>
---------------	-------------------	------------------	--------------------------	---------------------------------


Corrective measures (as applicable) taken, underway, or planned:


- c. How is flow currently measured?

<u>Outfall</u>	<u>Means of Measurement</u>	<u>Estimated Accuracy</u>
001	- Weir (rectangular) Burgess - Manning meter with an MC Transmitter For continuous recording.	about $\pm 15\%$

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 5 - Monitoring (Cont'd)

(Red)

d. Are flow measuring devices properly located? Yes

If not - discuss \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as applicable) underway or planned: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

e. Are the flow measuring devices periodically calibrated? Yes

If yes - complete the following:

<u>Outfall</u>	<u>Device</u>	<u>Last Calibrated</u>	<u>Record Maintained?</u>
001	Flow Recorder	Not Known	No

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

If no - describe an appropriate program:

<u>Outfall</u>	<u>Device</u>	<u>Type of Calibration</u>	<u>Frequency</u>
001	Weir + Flow Recorder	Dilution Testing	2/year

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit ProtocolORIGINAL  
(Red)Part C - Water Pollution Control Program Review (Cont'd)Section 5 - Monitoring (Cont'd)f. Are the flow measuring devices adequately maintained? Yes★ Are maintenance records kept? NoDoes the supply of spare parts seem adequate? YesComments: Installed in 1960

Corrective actions (as applicable): Stillings pond should be  
 ★ cleaned (desludged). This should be done after  
culvert to minimize wash out filling in stilling  
well.

g. How are composite samples taken?

<u>Outfall</u>	<u>Sampling Device</u>	<u>Proportional to Flow?</u>
<u>001</u>	<u>Continuous</u>	<u>No</u>
	<u>Rotating Cam</u>	
	<u>(PERISTALTIC)</u>	

h. Are the composite sampling devices adequately maintained? YesAre maintenance records kept? NoDoes the supply of spare parts seem adequate? Yes

Comments: \_\_\_\_\_

Corrective actions (as applicable): Records should be  
 ★ kept of any maintenance work done on  
sampler.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

UNCLASSIFIED  
(Red)

Section 5 - Monitoring (Cont'd)

i. Are the composite sampling devices properly located? Yes

If not - discuss \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Is the housekeeping at the sampling station satisfactory? Yes

Comments: \_\_\_\_\_

\_\_\_\_\_

Corrective actions (as applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

j. If pH and/or temperature are checked continuously, are the instruments in good condition? N.A. Maintenance records kept? N.A. Periodically calibrated? N.A.

If yes - complete:

<u>Outfall</u>	<u>Device</u>	<u>Last Calibrated</u>	<u>Calibration Records?</u>	<u>Maintenance Records?</u>
----------------	---------------	------------------------	-----------------------------	-----------------------------

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

If no - comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 5 - Monitoring (Cont'd)

- k. Are there effluent monitoring stations other than those at the outfalls? No. (However there will be after 7/1/77)\*

If yes - list:

<u>Station Location</u>	<u>Parameters Monitored</u>	<u>Sample Type</u>	<u>Sample Frequency</u>
* <u>Exit Hg Treatment</u>	<u>Hg</u>	<u>24 Hr. Comp.</u>	<u>1/wk</u>
* <u>Exit BOD<sub>5</sub> Treatment</u>	<u>BOD<sub>5</sub></u>	<u>24 Hr. Comp.</u>	<u>1/wk</u>

If no, or if judged inadequate, list any recommended additional monitoring:

<u>Station Location</u>	<u>Parameters Monitored</u>	<u>Sample Type</u>	<u>Sample Frequency</u>

- l. Are the wetted surfaces of sample collecting devices made of suitable materials? Yes

Comments (including any recommended changes): Polyethylene  
will not be satisfactory for samples to be  
run for chlorinated hydrocarbons.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd) ORIGINALSection 5 - Monitoring (Cont'd) (Red)

- m. Are sampling containers made of suitable materials? Are they clean and well marked? Yes

Comments (including any recommended changes): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- n. Are the EPA-approved analytical procedures listed in 40 CFR 136 as amended (effective 4/1/77) by 41 FR 52780-86, 12/1/76 used for all permit monitoring purposes? (See list of approved procedures on Pages 34a-34e).

<u>Permit Parameter</u>	<u>EPA Procedure Used (Reference &amp; Page)</u>
TSS	14 <sup>th</sup> Edition - Page 94
TS	" " - Page 91
Manganese	" " - Page 148
Mercury	" " - Page 152
Lead	" " - Page 148
BOD <sub>5</sub>	Outside Testing Lab (Trend)
Cyanide	HACH
Arsenic	14 <sup>th</sup> Edition - Page 283

## § 136.2 Definitions.

(f) "Standard Methods" means *Standard Methods for the Examination of Water and Waste Water*, 14th Edition, 1976. This publication is available from the American Public Health Association, 1015 18th Street, N.W., Washington, D.C. 20036.

(g) "ASTM" means *Annual Book of Standards, Part 31, Water*, 1975. This publication is available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

(h) "EPA Methods" means *Methods for Chemical Analysis of Water and Waste, 1974. Methods Development and Quality Assurance Research Laboratory*.

National Environmental Research Center, Cincinnati, Ohio 45268; U.S. Environmental Protection Agency, Office of Technology Transfer, Industrial Environmental Research Laboratory, Cincinnati, Ohio 45268. This publication is available from the Office of Technology Transfer.

TABLE I.—List of approved test procedures<sup>1</sup>

Parameter and units	Method	1974 EPA methods	14th ed. standard methods	Reference (page nos.)		Other approved methods <sup>2</sup>
				Pt. 31 ASTM	USCS 1976 methods <sup>3</sup>	
1. Acidity, as CaCO <sub>3</sub> , milligrams per liter.	Electrometric end point (pH of 4.5) or phenolphthalein end point.	1	272(43)	116	40	(1977)
2. Alkalinity, as CaCO <sub>3</sub> , milligrams per liter.	Electrometric titration (only to pH 4.5) manual or automatic, or equivalent automated methods.	3 3	279	111	41	(1977)
3. Ammonia (as N), milligrams per liter.	Manual distillation <sup>4</sup> (at pH 9.4) followed by nesslerization, titration, electrode, Automated photometer.	185 186 188	416 418 419	287	116	(1974)
<b>BACTERIA</b>						
4. Coliform (fecal) <sup>5</sup> , number per 100 ml.	MPN; <sup>6</sup> membrane filter.		322			
5. Coliform (fecal) <sup>5</sup> in presence of chlorine, number per 100 ml.	Id., <sup>6</sup>		387		7 (40)	
6. Coliform (total) <sup>5</sup> , number per 100 ml.	Id., <sup>6</sup>		316			
7. Coliform (total) <sup>5</sup> in presence of chlorine, number per 100 ml.	MPN; <sup>6</sup> membrane filter with enrichment.		316 336		7 (38)	
8. Fecal streptococci, <sup>5</sup> number per 100 ml.	MPN; <sup>6</sup> membrane filter; plate count.		348 344 347		7 (38)	
9. Hemolysin, milligrams per liter.	Oxidation-reduction potential.		613		7 (38)	
10. Biochemical oxygen demand, 5-d (BOD <sub>5</sub> ), milligrams per liter.	Winkler (Azide modification) or electrode method.		613		7 (38)	(17)
11. Peroxide, milligrams per liter.	Titrimetric, iodine-iodate...	14		328	73	(1977)
12. Chemical oxygen demand (COD), milligrams per liter.	Dichromate reflux.	20	450	473	124	(17)
13. Chloride, milligrams per liter.	Silver nitrate mercuric nitrate or automated colorimetric-mercurimetric.	20 20	450 413	473 285		(17) (15)

See footnote at end of table.

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## RULES AND REGULATIONS

Parameter and units	Method	1974 EPA methods	14th ed. standard methods	References (page nos.)		Other approved methods
				Pt. 31 1975 ASTM	USGS methods	
44. Cobalt—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .	107	148	348	88	" (37)
45. Cobalt—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total cobalt.					
46. Copper—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> or by colorimetric (Neocuproine).	108	148 198	348 298	88 (349) "	(37)
47. Copper—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total copper.					
48. Gold—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .					
49. Iridium—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .					
50. Iron—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> or by colorimetric (Phenanthroline).	109	148 208	348 298	108	" (349)
51. Iron—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total iron.					
52. Lead—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> or by colorimetric (Dithionite).	112	148 228	348	108	" (349)
53. Lead—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total lead.					
54. Magnesium—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> or gravimetric.	114	148 221	348	109	" (349)
55. Magnesium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total magnesium.					
56. Manganese—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> or by colorimetric (Periodate or ceric).	116	148 228, 227	348	111	" (349)
57. Manganese—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total manganese.					
58. Mercury—Total, milligrams per liter.	Fluxation atomic absorption.	118	148	388	" (31)	
59. Mercury—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total mercury.					
60. Molybdenum—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .	120		388		
61. Molybdenum—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total molybdenum.					
62. Nickel—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> or by colorimetric (Dimethylglyoxime).	148	148	388	118	
63. Nickel—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total nickel.					
64. Cadmium—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .					
65. Palladium—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .					
66. Platinum—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .					
67. Potassium—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption, colorimetric (Cobaltinitrite), or by flame photometric.	148	228 298	408	124	" (349)
68. Potassium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total potassium.					
69. Rhodium—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .					
70. Ruthenium—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .					
71. Selenium—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> .	148	228			
72. Selenium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total selenium.					
73. Silver—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by colorimetric (Diethyldithiocarbamate).	278	408	388	128	
74. Silver—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption <sup>a</sup> or by colorimetric (Dithionite).	148	148 228		148 (349)	" (37)
75. Silver—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total silver.					
76. Sodium—Total, milligrams per liter.	Digestion <sup>a</sup> followed by atomic absorption or by flame photometric.	148	228	408	148	" (349)
77. Sodium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>a</sup> followed by referenced method for total sodium.					

See footnotes at end of table.

# RULES AND REGULATIONS

- 3

ORIGINAL  
(Red)

Parameter and units	Method	1974 EPA methods	14th ed. standard methods	References (page nos.)		Other approved methods
				Pt. 41 1973 ASTM	USGS methods	
78. Thallium—Total, milligrams per liter.	Digestion <sup>1</sup> followed by atomic absorption. <sup>10</sup>	140				
79. Thallium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>11</sup> followed by referenced method for total thallium.					
80. Tin—Total, milligrams per liter.	Digestion <sup>1</sup> followed by atomic absorption. <sup>10</sup>	150			" (80)	
81. Tin—Dissolved, milligrams per liter.	0.45 micron filtration <sup>11</sup> followed by referenced method for total tin.					
82. Titanium—Total, milligrams per liter.	Digestion <sup>1</sup> followed by atomic absorption. <sup>10</sup>	161				
83. Titanium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>11</sup> followed by referenced method for total titanium.					
84. Vanadium—Total, milligrams per liter.	Digestion <sup>1</sup> followed by atomic absorption <sup>10</sup> or by colorimetric (Quin's acid).	153	152	441	" (57)	
85. Vanadium—Dissolved, milligrams per liter.	0.45 micron filtration <sup>11</sup> followed by referenced method for total vanadium.					
86. Zinc—Total, milligrams per liter.	Digestion <sup>1</sup> followed by atomic absorption <sup>10</sup> or by colorimetric (Dithionite).	156	148	348	180 <sup>1</sup> (619) (37)	
87. Zinc—Dissolved, milligrams per liter.	0.45 micron filtration <sup>11</sup> followed by referenced method for total zinc.		265			
88. Nitrate (as N), milligrams per liter.	Cadmium reduction; bromine sulfate; automated cadmium or hydrazine reduction. <sup>12</sup>	201 197 207	493 427 420		119 <sup>1</sup> (614) (28)	
89. Nitrate (as N), milligrams per liter.	Manual or automated colorimetric (Diazotization).	215	434		121	
90. Oil and grease, milligrams per liter.	Liquid-liquid extraction with trichloro-trifluoroethane-gravimetric.	220	615			
91. Organic carbon: total (TOC), milligrams per liter.	Combustion—Infrared method. <sup>13</sup>	226	532	447	" (4)	
92. Organic nitrogen (as N), milligrams per liter.	Kjeldahl nitrogen minus ammonia nitrogen.	174, 180	437		122 <sup>1</sup> (612, 614)	
93. Orthophosphate (as P), milligrams per liter.	Manual or automated ascorbic acid reduction.	248	481	384	121	" (621)
94. Pentachlorophenol, milligrams per liter.	Gas chromatography <sup>14</sup>	266	624			
95. Picolates, milligrams per liter.	Gas chromatography <sup>14</sup>		555	530	" (24)	
96. Phenols, milligrams per liter.	Colorimetric, (4AAP).	241	582	546		
97. Phosphorus (elemental), milligrams per liter.	Gas chromatography <sup>14</sup>					
98. Phosphorus: total (as P), milligrams per liter.	Persulfate digestion followed by manual or automated ascorbic acid reduction.	249 266	474, 481 621	384	126	" (621)
RADIOLOGICAL						
99. Alpha—Total, pCi per liter.	Proportional or scintillation counter.		648	5014 <sup>15</sup> (75+76)		
100. Alpha—Counting error, pCi per liter.	do.		648	5014	" (79)	
101. Beta—Total, pCi per liter.	Proportional counter.		648	5014 <sup>15</sup> (75+76)		
102. Beta—Counting error, pCi per liter.	do.		648	5014	" (79)	
103. (a) Radium—Total, pCi per liter.	do.		661	661		
(b) <sup>226</sup> Ra, pCi per liter.	Scintillation counter.		667		" (81)	
ANALYTICAL						
104. Total, milligrams per liter.	Gravimetric, 105 to 108° C.	270	91			
105. Total dissolved (filterable), milligrams per liter.	Glass fiber filtration, 100° C.	280	92			
106. Total suspended (nonfilterable), milligrams per liter.	Glass fiber filtration, 105 to 108° C.	280	94			
107. Sulfate, milligrams per liter or millimoles per liter.	Volumetric or gravimetric.		95			
108. Total volatile, milligrams per liter.	Gravimetric, 550° C.	272	96			
109. Specific conductance, micro-mhos per centimeter at 25° C.	Wheatstone bridge conductimetry.	273	71	120	146	" (608)
110. Sulfide (as SO <sub>2</sub> ), milligrams per liter.	Gravimetric; turbidimetric; or automated colorimetric (barium chloride).	277 279	408 408	424 426		" (621) " (622)
111. Sulfide (as S), milligrams per liter.	Titrimetric—iodine for levels greater than 1 mg per liter; methylene blue photometric.	284	555		154	
112. Sulfide (as SO <sub>3</sub> ), milligrams per liter.	Titrimetric, indine-iodate.	285	500	445		
113. Surfactants, milligrams per liter.	Colorimetric (Methylene blue).	157	600	494	" (11)	
114. Temperature, degrees C.	Calibrated glass or electrometric thermometer.	288	126		" (31)	
115. Turbidity, NTU.	Nephelometric.	226	132	263	156	

<sup>1</sup> Recommendations for sampling and preservation of samples according to parameter measured may be found in "Methods for Chemical Analysis of Water and Wastes, 1974" U.S. Environmental Protection Agency, table 2, pp. viii-xii.

DHS  
(Red)

## RULES AND REGULATIONS

- <sup>1</sup> All page references for USGS methods, unless otherwise noted, are to Brown, E., Shoupard, M. W., and Fishman, M. J., "Methods for Collection and Analysis of Water Samples for Dissolved Minerals and Gases," U.S. Geological Survey Techniques of Water-Resources Inv., book 3, ch. A1, (1973).
- <sup>2</sup> EPA comparable method may be found on indicated page of "Official Methods of Analysis of the Association of Official Analytical Chemists" methods manual, 12th ed. (1975).
- <sup>3</sup> Manual distillation is not required if comparability data on representative effluent samples are on company file to show that this preliminary distillation step is not necessary; however, manual distillation will be required to resolve any controversy.
- <sup>4</sup> The method used must be specified.
- <sup>5</sup> The 5 tube MPN is used.
- <sup>6</sup> Black, E. V. and others, "Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples," U.S. Geological Survey Techniques of Water-Resources Inv., book 3, ch. A4 (1973).
- <sup>7</sup> Since the membrane filter technique usually yields low and variable recovery from chlorinated wastewaters, the MPN method will be required to resolve any controversy.
- <sup>8</sup> Adequately tested methods for bensidine are not available. Until approved methods are available, the following interim method can be used for the estimation of bensidine: (1) "Method for Bensidine and Its Salts in Wastewater," available from Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268.
- <sup>9</sup> American National Standard on Photographic Processing Effluents, Apr. 2, 1973. Available from ANSI, 1430 Broadway, New York, N.Y. 10018.
- <sup>10</sup> Fishman, M. J. and Brown, Eugene, "Selected Methods of the U.S. Geological Survey for Analysis of Wastewater," (1976) open-file report 76-177.
- <sup>11</sup> Procedures for pentachlorophenol, chlorinated organic compounds, and pesticides can be obtained from the Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268.
- <sup>12</sup> Color method (A-DM) procedure available from Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268.
- <sup>13</sup> For samples suspected of having thiocyanate interference, magnesium chloride is used as the digestion catalyst. In the approved test procedure for cyanides, the recommended catalysts are replaced with 50 ml of a solution of 510 g/l magnesium chloride ( $MgCl_2 \cdot 6H_2O$ ). This substitution will eliminate thiocyanate interference for both total cyanide and cyanide amenable to chlorination measurements.
- <sup>14</sup> For the determination of total metals the sample is not filtered before processing. Because vigorous digestion procedures may result in a loss of certain metals through precipitation, a less vigorous treatment is recommended as given on p. 33 (A.1.4) of "Methods for Chemical Analysis of Water and Wastes" (1974). In those instances where a more vigorous digestion is desired the procedure on p. 33 (A.1.3) should be followed. For the measurement of the noble metal series (gold, iridium, osmium, palladium, platinum, rhodium and ruthenium), an aqua regia digestion is to be substituted as follows: Transfer a representative aliquot of the well-mixed sample to a Griffin beaker and add 3 ml of concentrated redistilled  $HNO_3$ . Place the beaker on a steam bath and evaporate to dryness. Cool the beaker and cautiously add a 5 ml portion of aqua regia. (Aqua regia is prepared immediately before use by carefully adding 3 volumes of concentrated  $HCl$  to one volume of concentrated  $HNO_3$ . Cover the beaker with a watch glass and return to the steam bath. Continue heating the covered beaker for 30 min. Remove cover and evaporate to dryness. Cool and take up the residue in a small quantity of 1:1  $HCl$ . Wash down the beaker walls and watch glass with distilled water and filter the sample to remove silicates and other insoluble material that could clog the atomizer. Adjust the value to some predetermined value based on the expected metal concentration. The sample is now ready for analysis.
- <sup>15</sup> As the various furnace devices (Spectrometers AA) are essentially atomic absorption techniques, they are considered to be approved test methods. Methods of standard addition are to be followed as noted in p. 78 of "Methods for Chemical Analysis of Water and Wastes," 1974.
- <sup>16</sup> Dissolved metals are defined as those constituents which will pass through a 0.45  $\mu m$  membrane filter. A pre-filtration is permissible to free the sample from larger suspended solids. Filter the sample as soon as practical after collection using the first 50 to 100 ml to rinse the filter flask. (Glass or plastic filtering apparatus are recommended to avoid possible contamination.) Discard the portion used to rinse the flask and collect the required volume of filtrate. Acidify the filtrate with 1:1 redistilled  $HNO_3$  to a pH of 2. Normally, 3 ml of (1:1) acid per liter should be sufficient to preserve the sample.
- <sup>17</sup> See "Atomic Absorption Newsletter," vol. 13, 78 (1976). Available from Perkin-Elmer Corp., Main Ave., Norwalk, Conn. 06854.
- <sup>18</sup> Method available from Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268.
- <sup>19</sup> Recommended methods for the analysis of silver in industrial wastewaters at concentrations of 1 mg/l and above are inadequate where silver exists as an inorganic halide. Silver halides such as the bromide and chloride are relatively insoluble in cyanide such as nitric acid but are readily soluble in an aqueous buffer of sodium thiosulfate and sodium hydroxide to a pH of 12. Therefore, for levels of silver above 1 mg/l 50 ml of sample should be diluted to 100 ml by adding 40 ml each of 2%  $Na_2S_2O_3$  and 2%  $NaOH$ . Standards should be prepared in the same manner. For levels of silver below 1 mg/l the recommended method is satisfactory.
- <sup>20</sup> An automated hydrazine reduction method is available from the Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268.
- <sup>21</sup> A number of such systems manufactured by various companies are considered to be comparable in their performance. In addition, another technique, based on combustion-methane detection is also acceptable.
- <sup>22</sup> Gerstle, D., Brown, E., "Methods for Analysis of Organic Substances in Water," U.S. Geological Survey Techniques of Water-Resources Inv., book 3, ch. A3 (1973).
- <sup>23</sup> R. F. Adams and E. G. Adams, "Direct Determination of Elemental Phosphorus by Gas-Liquid Chromatography," "Journal of Chromatography," vol. 67, No. 2, pp. 421-424, 1973.
- <sup>24</sup> The method based on p. 75 measures only the dissolved portion while the method on p. 76 measures only suspended. Therefore, the 2 results must be added together to obtain "total."
- <sup>25</sup> Brown, E. E., Felt, J. F., and Smart, G. J., "Water Temperature—Indicator Fraction, Field Measurements and Data Presentation," U.S. Geological Survey Techniques of Water-Resources Inv., book 1 (1973).

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd) ORIGINALSection 5 - Monitoring (Cont'd)

- o. Are the prescribed procedures followed exactly?
- Yes

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- p. Has approval of any alternate procedures been obtained from USEPA?
- No

If so - list parameter(s) involved and approval date(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- q. Are the following analytical references for wastewaters on hand?

No 40 CFR 136 (as amended effective 4/1/77)No "Standard Methods for the Examination of Water and Wastewater," 14th Edition (American Public Health Association)No "Annual Book of Standards, Part 31, Water, 1975" (American Society for Testing and Materials)Yes "Methods for Chemical Analysis of Water and Waste, 1974" (National Environmental Research Center, USEPA)

- r. Are the analytical instruments used for wastewater analysis calibrated routinely?
- Yes
- If yes - list:

<u>Instrument</u>	<u>Calibration Freq.</u>	<u>Last Calibration</u>	<u>Records Kept?</u>
Coleman H <sub>2</sub> Analyzer	Weekly	—	Yes
Beckman 440 A.A.	Daily	—	Yes
Hall Electrode	Daily	—	Yes
Conductivity Detector			

# SCD Environmental Audit Protocol

(Red)

## Part C - Water Pollution Control Program Review (Cont'd)

## Section 5 - Monitoring (Cont'd)

r. (Cont'd)

If not (or if program is judged inadequate) - list recommendations:

## Instrument

## Calibration Method

Calibration Frequency

s. Are analytical records properly signed and dated? Yes

t. Are all records relating to the permit monitoring program, including calibration and maintenance of sampling and analytical instruments and recordings from continuous monitoring equipment, retained for a minimum of three years? No Are these records maintained in an orderly fashion? Yes Are they readily accessible? Yes

Comments: No records are maintained on maintenance  
of flow and sampling equipment or on  
calibration of flow measuring unit.

★ Corrective measures (as applicable): Initiate a suitable  
Record Keeping program for above items.

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ORIGINAL

Part C - Water Pollution Control Program Review (Cont'd)Section 5 - Monitoring (Cont'd)u. Is there an analytical quality control program? No

If yes - describe and evaluate adequacy: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Recommendations (if any) for improvement: A program based

\* on analysis of standard samples obtained from  
a reputable supply house (to be run as unknown  
should be instituted.

\_\_\_\_\_

v. Have comparative analyses of split samples been performed with another laboratory? Yes

If yes - list:

<u>Other Lab</u>	<u>Date</u>	<u>Parameter</u>	<u>Plant Results</u>	<u>Other Lab Result</u>
CRL	2/22-3/77	CCl <sub>4</sub>		
EPA	7/20-7/23/76	ALL NPDES		
EPA	2/77-3/77	CCl <sub>4</sub>		
TranDET	7/20-7/23/76	MN	4.8 mg/l 5.4 mg/l	4.6 mg/l 5.2 mg/l

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

w. Are some permit monitoring analyses performed by an outside laboratory? Yes If yes - by whom? TranDET Laboratories - Wheel  
 Why? Plant does not have capability for BOD  
analysis.

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part C - Water Pollution Control Program Review (Cont'd)

Section 5 - Monitoring (Cont'd)

w. (Cont'd)

Are there any problems with the outside analyses (time, cost, reliability, etc.)? No

If yes - describe: \_\_\_\_\_  
\_\_\_\_\_

Corrective measures (as applicable) underway or planned: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

x. List all routine monitoring reports required to be submitted to regulatory agencies:

<u>Agency</u>	<u>Report</u>	<u>Freq. of Submittal</u>	<u>Date Due</u>
USEPA III	Monitoring	Quarterly	28th day of month following END of Qr.
WUDNR	Monitoring	Monthly	Not specified
WUDNR	Well Monitoring	Monthly	Not specified

y. Are these reports being submitted in a timely fashion? Yes  
If not - comment: \_\_\_\_\_  
\_\_\_\_\_

Corrective measures (as applicable) underway or planned: N.A.  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 5 - Monitoring (Cont'd)

- z. Are complete and orderly records kept of monitoring reports submitted to regulatory agencies? Yes

If not - comment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as applicable): N.A.

\_\_\_\_\_

\_\_\_\_\_

- aa. Is the plant laboratory(ies) housekeeping satisfactory? Yes

If not - comment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as applicable) recommended: N.A.

\_\_\_\_\_

\_\_\_\_\_

- bb. List the educational and experience credentials of those performing or supervising the wastewater monitoring program:

<u>Position</u>	<u>Name</u>	<u>Education</u>	<u>Analytical Experience (Yrs.)</u>
Supv. Envir. Cont.	D.P. DeNoon	B.S. Chem.	23
Chemist I	G.C. Riley	B.S. Biol / Chem. Minor	6
Chemist I	R.C. Conway	1 yr. College	21

\_\_\_\_\_

\_\_\_\_\_



SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont <sup>ORIGINAL</sup>)

(Red)

Section 6 - Oil Spill Prevention and Control

- a. Is an Oil "Spill Prevention, Control, and Countermeasure" (SPCC) Plan required by 40 CFR 112? Yes (Required if more than 660 gallons storage capacity aboveground in one container, or 1320 gallons or more total aboveground, or 42,000 gallons or more total belowground.)

- \* b. If required, has an oil SPCC Plan been prepared? No<sup>(1)</sup>  
 Is it signed by a Professional Engineer? N.A.  
 Are transformer oils (including PCB's) covered? Will be  
 If not - should they be? Yes

- c. Is the Oil SPCC Plan current (particularly with respect to regulatory agency contacts and plant response team names and telephone numbers)? N.A.

Has the three-year review (40 CFR 112.5(b)) been made? N.A.

If made - when? N.A.

What changes were found necessary? N.A.

When will they be completed (required within six months - 40 CFR 112.5(b))? N.A.

(1) Necessity of preparing plan was overlooked because Transformers were not originally considered.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 6 - Oil Spill Prevention and Control (Cont'd)

- d. Has the oil SPCC plan been checked or reviewed by a regulatory agency (not mandatory)? N.A.

If yes - list any corrective measures required:

Corrective Measures

Status

<u>Corrective Measures</u>	<u>Status</u>

- e. Have one or more oil spills occurred since January 10, 1973? Yes

If yes - are they reviewed in the Oil SPCC Plan (40 CFR 112)?

N.A.

Did any spill since January 10, 1973 discharge into a waterbody?

Yes

If yes - was it (were they) reported as required by 33 CFR 153.203?

Yes If reported - list:

<u>Date of Spill</u>	<u>Est. Amount</u>	<u>Report Date</u>	<u>Agency Enforcement Action (if any)</u>
<u>2/18/77</u>	<u>55 gal Lubricant</u>	<u>2/18/77</u>	<u>None at time of review</u>

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Part C - Water Pollution Control Program Review (Cont'd)

Section 6 - Oil Spill Prevention and Control (Cont'd)

- f. If two reportable spills occurred within a 12-month period, or more than 1000 gallons of oil was discharged in a single incident, has the special report to the EPA Regional Administrator (40 CFR 112.4) been submitted? N.A.

If yes - when? N.A.

- g. Does the Oil SPCC Plan include an implementation program? N.A.

If yes - was it completed by January 10, 1975 (40 CFR 112.3(a))?

N.A.

If not - was an extension requested? N.A.

If an extension was requested:

Date of Request N.A. Extended Completion Date N.A.

Was extended date met? N.A. Was EPA Regional Administrator so notified (not mandatory)? N.A. When? N.A.

- h. Does the oil SPCC Plan follow the applicable guidelines promulgated in 40 CFR 112.7? (copy attached - Pages 43a-43d) N.A.

If not, list discrepancies: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective actions (as applicable) underway or planned: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(iv) Weirs, booms or other barriers  
 (v) Spill diversion ponds  
 (vi) Retention ponds  
 (vii) Sorbent materials  
 (2) Offshore facilities.  
 (i) Curbing, drip pans  
 (ii) Sumps and collection systems  
 (d) When it is determined that the installation of structures or equipment listed in § 112.7(c) to prevent discharged oil from reaching the navigable waters is not practicable from any onshore or offshore facility, the owner or operator should clearly demonstrate such impracticability and provide the following:

(1) A strong oil spill contingency plan following the provision of 40 CFR Part 109.

(2) A written commitment of manpower, equipment and materials required to expeditiously control and remove any harmful quantity of oil discharged.

(e) In addition to the minimal prevention standards listed under § 112.7(c), sections of the Plan should include a complete discussion of conformance with the following applicable guidelines, other effective spill prevention and containment procedures (or, if more stringent, with State rules, regulations and guidelines):

(1) *Facility drainage (onshore):* (i) *including production facilities:* (i) Drainage from diked storage areas should be restrained by valves or other positive means to prevent a spill or other excessive leakage of oil into the drainage system or inplant effluent treatment system, except where plan systems are designed to handle such leakage. Diked areas may be emptied by pumps or ejectors; however, these should be manually activated and the condition of the accumulation should be examined before starting to be sure no oil will be discharged into the water.

(ii) Flapper-type drain valves should not be used to drain diked areas. Valves used for the drainage of diked areas should, as far as practical, be of manual, open-and-closed design. When plant drainage drains directly into water courses and not into wastewater treatment plants, retained storm water should be inspected as provided in paragraph (e) (2) (iii) (B, C and D) before drainage.

(iii) Plant drainage systems from undiked areas should, if possible, flow into ponds, lagoons or catchment basins, designed to retain oil or return it to the facility. Catchment basins should not be located in areas subject to periodic flooding.

(iv) If plant drainage is not engineered as above, the final discharge of all in-plant ditches should be equipped with a diversion system that could, in the event of an uncontrolled spill, return the oil to the plant.

(v) Where drainage waters are treated in more than one treatment unit, natural hydraulic flow should be used. If pump transfer is needed, two "lift" pumps should be provided, and at least one of the pumps should be permanently installed when such treatment is continuous. In any event, whatever techniques are used facility drainage systems should be adequately engineered to prevent oil from reaching navigable waters in the event of equipment failure.

**§ 112.7 Guidelines for the preparation and implementation of a Spill Prevention Control and Countermeasure Plan.**

The SPCC Plan shall be a carefully thought-out plan, prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources. If the plan calls for additional facilities or procedures, methods, or equipment not yet fully operational, these items should be discussed in separate paragraphs, and the details of installation and operational start-up should be explained separately. The complete SPCC Plan shall follow the sequence outlined below, and include a discussion of the facility's conformance with the appropriate guidelines listed:

(a) A facility which has experienced one or more spill events within twelve months prior to the effective date of this part should include a written description of each such spill, corrective action taken and plans for preventing recurrence.

(b) Where experience indicates a reasonable potential for equipment failure (such as tank overflow, rupture, or leakage), the plan should include a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each major type of failure.

(c) Appropriate containment and/or diversionary structures or equipment to prevent discharged oil from reaching a navigable water course should be provided. One of the following preventive systems or its equivalent should be used as a minimum:

- (i) Onshore facilities.
- (i) Dikes, berms or retaining walls sufficiently impervious to contain spilled oil
- (iii) Culverting, gutters or other drainage systems

human error at the facility.

**(2) Bulk storage tanks (onshore): (excluding production facilities).** (i) No tank should be used for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.

(ii) All bulk storage tank installations should be constructed so that a secondary means of containment is provided for the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation. Diked areas should be sufficiently impervious to contain spilled oil. Dikes, containment curbs, and pits are commonly employed for this purpose, but they may not always be appropriate. An alternative system could consist of a complete drainage trench enclosure arranged so that a spill could terminate and be safely confined in an in-plant catchment basin or holding pond.

(iii) Drainage of rainwater from the diked area into a storm drain or an effluent discharge that empties into an open water course, lake, or pond, and bypassing the in-plant treatment system may be acceptable if:

(A) The bypass valve is normally sealed closed.

(B) Inspection of the run-off rain water ensures compliance with applicable water quality standards and will not cause a harmful discharge as defined in 40 CFR 110.

(C) The bypass valve is opened, and resealed following drainage under responsible supervision.

(D) Adequate records are kept of such events.

(iv) Buried metallic storage tanks represent a potential for undetected spills. A new buried installation should be protected from corrosion by coatings, cathodic protection or other effective methods compatible with local soil conditions. Such buried tanks should at least be subjected to regular pressure testing.

(v) Partially buried metallic tanks for the storage of oil should be avoided, unless the buried section of the shell is adequately coated, since partial burial in damp earth can cause rapid corrosion of metallic surfaces, especially at the earth/air interface.

(vi) Aboveground tanks should be subject to periodic integrity testing, taking into account tank design (floating roof, etc.) and using such techniques as hydrostatic testing, visual inspection or a system of non-destructive shell thickness testing. Comparison records should be kept where appropriate, and tank supports and foundations should be included in these inspections. In addition, the outside of the tank should frequently be observed by operating personnel for signs of deterioration, leaks which might cause a spill, or accumulation of oil inside diked areas.

(vii) To control leakage through defective internal heating coils, the following factors should be considered and applied, as appropriate.

(A) The steam return or exhaust lines from internal heating coils which discharge into an open water course should be monitored for contamination, or passed through a settling tank, skimmer, or other separation or retention system.

(B) The feasibility of installing an external heating system should also be considered.

(viii) New and old tank installations should, as far as practical, be fail-safe engineered or updated into a fail-safe engineered installation to avoid spills. Consideration should be given to providing one or more of the following devices:

(A) High liquid level alarms with an audible or visual signal at a constantly manned operation or surveillance station; in smaller plants an audible air vent may suffice.

(B) Considering size and complexity of the facility, high liquid level pump cutoff devices set to stop flow at a predetermined tank content level.

(C) Direct audible or code signal communication between the tank gauger and the pumping station.

(D) A fast response system for determining the liquid level of each bulk storage tank such as digital computers, teletype, or direct vision gauges or their equivalent.

(E) Liquid level sensing devices should be regularly tested to insure proper operation.

(ix) Plant effluents which are discharged into navigable waters should have disposal facilities observed frequently enough to detect possible system upsets that could cause an oil spill event.

(x) Visible oil leaks which result in a loss of oil from tank seams, gaskets, rivets and bolts sufficiently large to cause the accumulation of oil in diked areas should be promptly corrected.

(xi) Mobile or portable oil storage tanks (onshore) should be positioned or located so as to prevent spilled oil from reaching navigable waters. A secondary means of containment, such as dikes or catchment basins, should be furnished for the largest single compartment or tank. These facilities should be located where they will not be subject to periodic flooding or washout.

**(3) Facility transfer operations, pumping, and in-plant process (onshore): (excluding production facilities).** (i) Buried piping installations should have a protective wrapping and coating and should be cathodically protected if soil conditions warrant. If a section of buried line is exposed for any reason, it should be carefully examined for deterioration. If corrosion damage is found, additional examination and corrective action should be taken as indicated by the magnitude of the damage. An alternative would be the more frequent use of exposed pipe corridors or galleries.

(ii) When a pipeline is not in service, or in standby service for an extended time the terminal connection at the transfer point should be capped or blank-flanged, and marked as to origin.

(iii) Pipe supports should be properly designed to minimize abrasion and corrosion and allow for expansion and contraction.

(iv) All aboveground valves and pipelines should be subjected to regular examinations by operating personnel at which time the general condition of items, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces should be assessed. In addition, periodic pressure testing may

be warranted for piping in areas where facility drainage is such that a failure might lead to a spill event.

(v) Vehicular traffic granted entry into the facility should be warned verbally or by appropriate signs to be sure that the vehicle, because of its size, will not endanger above ground piping.

**(4) Facility tank car and tank truck loading/unloading rack (onshore).** (i) Tank car and tank truck loading/unloading procedures should meet the minimum requirements and regulation established by the Department of Transportation.

(ii) Where rack area drainage does not flow into a catchment basin or treatment facility designed to handle spills, a quick drainage system should be used for tank truck loading and unloading areas. The containment system should be designed to hold at least maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded in the plant.

(iii) An interlocked warning light or physical barrier system, or warning signs, should be provided in loading/unloading areas to prevent vehicular departure before complete disconnect of flexible or fixed transfer lines.

(iv) Prior to filling and departure of any tank car or tank truck, the lowermost drain and all outlets of such vehicles should be closely examined for leakage, and if necessary, tightened, adjusted, or replaced to prevent liquid leakage while in transit.

**(5) Oil production facilities (onshore).**

(i) **Definition.** An onshore production facility may include all wells, flowlines, separation equipment, storage facilities, gathering lines, and auxiliary non-transportation-related equipment and facilities in a single geographical oil or gas field operated by a single operator.

(ii) **Oil production facility (onshore) drainage.** (A) At tank batteries and central treating stations where an accidental discharge of oil would have a reasonable possibility of reaching navigable waters, the dikes or equivalent required under § 112.7(c)(1) should have drains closed and sealed at all times except when rainwater is being drained. Prior to drainage, the diked area should be inspected as provided in paragraph (e)(2)(iii) (B), (C), and (D). Accumulated oil on the rainwater should be picked up and returned to storage or disposed of in accordance with approved methods.

(B) Field drainage ditches, road ditches, and oil traps, sumps or skimmers, if such exist, should be inspected at regularly scheduled intervals for accumulation of oil that may have escaped from small leaks. Any such accumulations should be removed.

(iii) **Oil production facility (onshore) bulk storage tanks.** (A) No tank should be used for the storage of oil unless its material and construction are compatible with the material stored and the conditions of storage.

(B) All tank battery and central treating plant installations should be provided with a secondary means of containment for the entire contents of the largest single tank if feasible, or alternate systems such as those outlined in § 112.7(c)(1). Drainage from undiked areas should be safely confined in a catchment basin or

holding pond.

(C) All tanks containing oil should be virtually examined by a competent person for condition and need for maintenance on a scheduled periodic basis. Such examination should include the foundation and supports of tanks that are above the surface of the ground.

(D) New and old tank battery installations should, as far as practical, be fail-safe engineered or updated into a fail-safe engineered installation to prevent spills. Consideration should be given to one or more of the following:

(1) Adequate tank capacity to assure that a tank will not overflow should a pumper, gauger be delayed in making his regular rounds.

(2) Overflow equalizing lines between tanks so that a full tank can overflow to an adjacent tank.

(3) Adequate vacuum protection to prevent tank collapse during a pipeline run.

(4) High level sensors to generate and transmit an alarm signal to the computer where facilities are a part of a computer production control system.

(iv) Facility transfer operations, oil production facility (onshore). (A) All above ground valves and pipelines should be examined periodically on a scheduled basis for general condition of items such as flange joints, valve glands and bodies, drip pans, pipeline supports, pumping well polish rod stuffing boxes, bleeder and gauge valves.

(B) Salt water (oil field brine) disposal facilities should be examined often, particularly following a sudden change in atmospheric temperature to detect possible system upsets that could cause an oil discharge.

(C) Production facilities should have a program of flowline maintenance to prevent spills from this source. The program should include periodic examinations, corrosion protection, flowline replacement, and adequate records, as appropriate, for the individual facility.

(6) Oil drilling and workover facilities (onshore) (i) Mobile drilling or workover equipment should be positioned or located so as to prevent spilled oil from reaching navigable waters.

(ii) Depending on the location, catchment basins or diversion structures may be necessary to intercept and contain spills of fuel, crude oil, or oily drilling fluids.

(iii) Before drilling below any casing string or during workover operations, a blowout prevention (BOP) assembly and well control system should be installed that is capable of controlling any well head pressure that is expected to be encountered while that BOP assembly is on the well. Casing and BOP installations should be in accordance with State regulatory agency requirements.

(7) Oil drilling, production, or workover facilities (offshore). (i) Definition: "An oil drilling, production or workover facility (offshore)" may include all drilling or workover equipment, wells, flowlines, gathering lines, platforms, and auxiliary nontransportation-related equipment and facilities in a single geographical oil or gas field operated by a single operator.

(ii) Oil drainage collection equipment should be used to prevent and control small oil spillage around pumps, glands,

valves, flanges, expansion joints, hoses, drain lines, separators, treaters, tanks, and allied equipment. Drains on the facility should be controlled and directed toward a central collection sump or equivalent collection system sufficient to prevent discharges of oil into the navigable waters of the United States. Where drains and sumps are not practicable oil contained in collection equipment should be removed as often as necessary to prevent overflow.

(iii) For facilities employing a sump system, sump and drains should be adequately sized and a spare pump or equivalent method should be available to remove liquid from the sump and assure that oil does not escape. A regular scheduled preventive maintenance inspection and testing program should be employed to assure reliable operation of the liquid removal system and pump start-up device. Redundant automatic sump pumps and control devices may be required on some installations.

(iv) In areas where separators and treaters are equipped with dump valves whose predominant mode of failure is in the closed position and pollution risk is high, the facility should be specially equipped to prevent the escape of oil. This could be accomplished by extending the flare line to a diked area if the separator is near shore, equipping it with a high liquid level sensor that will automatically shut-in wells producing to the separator, parallel redundant dump valves, or other feasible alternatives to prevent oil discharges.

(v) Atmospheric storage or surge tanks should be equipped with high liquid level sensing devices or other acceptable alternatives to prevent oil discharges.

(vi) Pressure tanks should be equipped with high and low pressure sensing devices to activate an alarm and/or control the flow or other acceptable alternatives to prevent oil discharges.

(vii) Tanks should be equipped with suitable corrosion protection.

(viii) A written procedure for inspecting and testing pollution prevention equipment and systems should be prepared and maintained at the facility. Such procedures should be included as part of the SPCC Plan.

(ix) Testing and inspection of the pollution prevention equipment and systems at the facility should be conducted by the owner or operator on a scheduled periodic basis commensurate with the complexity, conditions and circumstances of the facility or other appropriate regulations.

(x) Surface and subsurface well shut-in valves and devices in use at the facility should be sufficiently described to determine method of activation or control, e.g., pressure differential, change in fluid or flow conditions, combination of pressure and flow, manual or remote control mechanisms. Detailed records for each well, while not necessarily part of the plan should be kept by the owner or operator.

(xi) Before drilling below any casing string, and during workover operations a blowout preventer (BOP) assembly and well control system should be installed that is capable of controlling any well-head pressure that is expected to be encountered while that BOP assembly is

on the well. Casing and BOP installations should be in accordance with State regulatory agency requirements.

(xii) Extraordinary well control measures should be provided should emergency conditions, including fire, loss of control and other abnormal conditions, occur. The degree of control system redundancy should vary with hazard exposure and probable consequences of failure. It is recommended that surface shut-in systems have redundant or "fail close" valving. Subsurface safety valves may not be needed in producing wells that will not flow but should be installed as required by applicable State regulations.

(xiii) In order that there will be no misunderstanding of joint and separate duties and obligations to perform work in a safe and pollution free manner, written instructions should be prepared by the owner or operator for contractors and subcontractors to follow whenever contract activities include servicing a well or systems appurtenant to a well or pressure vessel. Such instructions and procedures should be maintained at the offshore production facility. Under certain circumstances and conditions such contractor activities may require the presence at the facility of an authorized representative of the owner or operator who would intervene when necessary to prevent a spill event.

(xiv) All manifolds (headers) should be equipped with check valves on individual flowlines.

(xv) If the shut-in well pressure is greater than the working pressure of the flowline and manifold valves up to and including the header valves associated with that individual flowline, the flowline should be equipped with a high pressure sensing device and shut-in valve at the wellhead unless provided with a pressure relief system to prevent over pressuring.

(xvi) All pipelines appurtenant to the facility should be protected from corrosion. Methods used, such as protective coatings or cathodic protection, should be discussed.

(xvii) Sub-marine pipelines appurtenant to the facility should be adequately protected against environmental stresses and other activities such as fishing operations.

(xviii) Sub-marine pipelines appurtenant to the facility should be in good operating condition at all times and inspected on a scheduled periodic basis for failures. Such inspections should be documented and maintained at the facility.

(8) Inspections and records. Inspections required by this part should be in accordance with written procedures developed for the facility by the owner or operator. These written procedures and a record of the inspections, signed by the appropriate supervisor or inspector, should be made part of the SPCC Plan and maintained for a period of three years.

(9) Security (excluding oil production facilities). (i) All plants handling, processing, and storing oil should be fully fenced, and entrance gates should be locked and/or guarded when the plant is not in production or is unattended.

(ii) The master flow and drain valves and any other valves that will permit

ORIGINAL  
(Red)

direct outward flow of the tank's content to the surface should be securely locked in the closed position when in non-operating or non-standby status.

(iii) The starter control on all oil pumps should be locked in the "off" position or located at a site accessible only to authorized personnel when the pumps are in a non-operating or non-standby status.

(iv) The loading/unloading connections of oil pipelines should be securely capped or blank-flanged when not in service or standby service for an extended time. This security practice should also apply to pipelines that are emptied of liquid content either by draining or by inert gas pressure.

(v) Facility lighting should be commensurate with the type and location of the facility. Consideration should be given to: (A) Discovery of spills occurring during hours of darkness, both by operating personnel, if present, and by non-operating personnel (the general public, local police, etc.) and (B) prevention of spills occurring through acts of vandalism.

(10) Personnel, training and spill prevention procedures. (i) Owners or operators are responsible for properly instructing their personnel in the operation and maintenance of equipment to prevent the discharges of oil and applicable pollution control laws, rules and regulations.

(ii) Each applicable facility should have a designated person who is accountable for oil spill prevention and who reports to line management.

(iii) Owners or operators should schedule and conduct spill prevention briefings for their operating personnel at intervals frequent enough to assure adequate understanding of the SPOC Plan for that facility. Such briefings should highlight and describe known spill events or failures, malfunctioning components, and recently developed precautionary measures.

#### APPENDIX

Memorandum of Understanding between the Secretary of Transportation and the Administrator of the Environmental Protection Agency.

#### SECTION II—DEFINITIONS

The Environmental Protection Agency and the Department of Transportation agree that for the purposes of Executive Order 11544, the term:

(1) "Non-transportation-related onshore and offshore facilities" means:

(A) Fixed onshore and offshore oil well drilling facilities including all equipment and appurtenances related thereto used in drilling operations for exploratory or development wells, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(B) Mobile onshore and offshore oil well drilling platforms, barges, trucks, or other mobile facilities including all equipment and appurtenances related thereto when such mobile facilities are fixed in position for the purpose of drilling operations for exploratory or development wells, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(C) Fixed onshore and offshore oil production structures, platforms, derricks, and rigs including all equipment and appurtenances related thereto, as well as completed wells and the wellhead separators, oil separators,

and storage facilities used in the production of oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(D) Mobile onshore and offshore oil production facilities including all equipment and appurtenances related thereto as well as completed wells and wellhead equipment, piping from wellheads to oil separators, oil separators, and storage facilities used in the production of oil when such mobile facilities are fixed in position for the purpose of oil production operations, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(E) Oil refining facilities including all equipment and appurtenances related thereto as well as in-plant processing units, storage units, piping, drainage systems and waste treatment units used in the refining of oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(F) Oil storage facilities including all equipment and appurtenances related thereto as well as fixed bulk plant storage, terminal oil storage facilities, consumer storage, pumps and drainage systems used in the storage of oil, but excluding inline or breakout storage tanks needed for the continuous operation of a pipeline system and any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(G) Industrial, commercial, agricultural or public facilities which use and store oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(H) Waste treatment facilities including in-plant pipelines, effluent discharge lines, and storage tanks, but excluding waste treatment facilities located on vessels and terminal storage tanks and appurtenances for the reception of oily ballast water or tank washings from vessels and associated systems used for off-loading vessels.

(I) Loading racks, transfer hoses, loading arms and other equipment which are appurtenant to a nontransportation-related facility or terminal facility and which are used to transfer oil in bulk to or from highway vehicles or railroad cars.

(J) Highway vehicles and railroad cars which are used for the transport of oil exclusively within the confines of a nontransportation-related facility and which are not intended to transport oil in interstate or intrastate commerce.

(K) Pipeline systems which are used for the transport of oil exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended to transport oil in interstate or intrastate commerce, but excluding pipeline systems used to transfer oil in bulk to or from a vessel.

(2) "transportation-related onshore and offshore facilities" means:

(A) Onshore and offshore terminal facilities including transfer hoses, loading arms and other equipment and appurtenances used for the purpose of handling or transferring oil in bulk to or from a vessel as well as storage tanks and appurtenances for the reception of oily ballast water or tank washings from vessels, but excluding terminal waste treatment facilities and terminal oil storage facilities.

(B) Transfer hoses, loading arms and other equipment appurtenant to a nontransportation-related facility which is used to transfer oil in bulk to or from a vessel.

(C) Interstate and intrastate onshore and offshore pipeline systems including pumps and appurtenances related thereto as well as in-line or breakout storage tanks needed for the continuous operation of a pipeline system, and pipelines from onshore and offshore oil production facilities, but excluding

onshore and offshore piping from wellheads to oil separators and pipelines which are used for the transport of oil exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended to transport oil in interstate or intrastate commerce or to transfer oil in bulk to or from a vessel.

(D) Highway vehicles and railroad cars which are used for the transport of oil in interstate or intrastate commerce and the equipment and appurtenances related thereto, and equipment used for the fueling of locomotive units, as well as the rights-of-way on which they operate. Excluded are highway vehicles and railroad cars and motive power used exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended for use in interstate or intrastate commerce.

[FR Doc.73-25448 Filed 12-10-73;8:45 am]

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd) ORIGINALSection 6 - Oil Spill Prevention and Control (Cont'd)

1. What aboveground oil storage tanks are not diked? 24 Transformers  
4@ 8680 gal., 2@ 3300 gal., 5@ 760 gal., 3@ 425 gal., 1@ 508  
3@ 796 gal., 1@ 300 gal., 4@ 200 gal., 1@ 150 gal. - T.T. 1 49.5  
plus 440 gal. in 55 gal.  
 Should they be diked?

Possibility (and need) of curbing, diking on other  
secondary containment. For all transformers should be  
investigated  
 If yes - what is the current status of plans for any additional  
 diking deemed necessary? Presently being evaluated by  
plant. Plans will be included in SPCC plan.

2. Is existing diking around oil storage tanks adequate (capacity & condition)? There are no other above ground  
oil storage tanks. There is one 3000 gal.  
buried gasoline storage tank.

If inadequate - what corrective measures (as applicable) are  
 underway or planned? N.A.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) <sup>ORIGINAL</sup>  
(Red)

Section 6 - Oil Spill Prevention and Control (Cont'd)

- k. Are diking sumps, pumps, valves, etc. suitable, and in good condition? N.A.

Comments - including corrective measures (as applicable): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- l. Are oil loading/unloading stations (except barge handling facilities) provided with suitable spill prevention and containment facilities? N.A.

Comments - including corrective measures (as applicable): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Note: Barge handling facilities transferring oil and/or chemicals will be covered by a separate audit.

- m. Is a satisfactory level of administrative control maintained over the drainage of liquids collected within diked areas? N.A.

Are there written instructions? \_\_\_\_\_

Comments - including corrective measures (as applicable): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 6 - Oil Spill Prevention and Control (Cont'd)

n. Are there oil booms installed in the plant sewer network system?

No

If no - should there be? Yes

If yes - are they adequate to prevent potential spills from reaching the receiving waterbody? N.A.

If not - what improvements should be made? Plant plans to install boom.

o. Are there in-place oil booms installed in the receiving waterbody at the plant outfalls? No If no - should there be? No

If booms are in place - do they appear adequate? N.A.

Describe and comment:

List any improvements (as applicable) underway or planned: N.A.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd) (Red)

Section 6 - Oil Spill Prevention and Control (Cont'd)

- p. Are stored oil spill booms on hand? Yes If yes - are they readily available? Yes Adequate? Yes

Comments: 500 Ft. boom

- q. Are oil sorbent materials kept on hand? Yes If yes - readily available? Yes Adequate quantity? Yes

Comments: \_\_\_\_\_

- r. Is a suitable small boat readily available for use in oil spill emergency situations? Yes If no - should there be? N.A.

Comments: 16 Ft. aluminum outboard - station should  
be periodically tested. A launching ramp  
should be provided.

- s. Have suitable arrangements been made for quickly securing the services of a local containment and cleanup contractor (or contractors in the event of an oil-spill emergency)? No If not - should such arrangements be made? Yes

Comment: North plant has contract w. PG & E. This  
contract should be expanded to cover South  
Plant.

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 6 - Oil Spill Prevention and Control (Cont'd)

- t. Is there an industrial cooperative group in the area which provides for mutual assistance in the event of an oil spill? Yes

If yes - what is the name of the group? Northern Ohio River Industrial Mutual Aid Council (NORIMAC)

Are we a member? Yes If no - why not? North plant is a member of Norimac. South plant apparently is not.

- u. Does the Works have a trained oil spill response team? No

If no - should one be formed? Yes

\* Comments: This will be an action item under the SPCC plan.

If yes - are organization and training adequate? N.A.

If not - comment (including recommendations): \_\_\_\_\_

- v. How are waste oils (lubricating, etc.) disposed of? They are collected in drums and ① Given to employees when requested or ② dumped on coal pile for subsequent burning in boilers.

Is this satisfactory? Yes

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part C - Water Pollution Control Program Review (Cont'd)

Section 6 - Oil Spill Prevention and Control (Cont'd)

v. (Cont'd)

If no - how should they be handled? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

w. Are there known current or potential problems related to oil  
spills other than those covered above? No.

If yes - describe: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as applicable) underway or planned: N.A.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 7 - Chemical Spill Prevention and Control

- a. Has a chemical "Spill Prevention, Control, and Countermeasure" (C-SPCC) Plan been prepared? No Is it current (particularly with respect to regulatory agency contacts, and plant response team names and phone numbers)? NA Is it readily available throughout the plant? N.A.

Comments: A Chemical SPCC plan was developed and issued subsequent to the review.

- b. Does the C-SPCC Plan appear to have any significant flaws or omissions? N.A.

If yes - list: \_\_\_\_\_

Corrective measures (as applicable): \_\_\_\_\_

- c. Have there been any known spill-type discharges of chemicals to the receiving waterbody (or municipal waste treatment system) since January 1, 1975? Yes

If yes - list as follows: \_\_\_\_\_

SCD Environmental Audit ProtocolORIGINAL  
(Red)Part C - Water Pollution Control Program Review (Cont'd)Section 7 - Chemical Spill Prevention and Control (Cont'd)

c. (Cont'd)

<u>Date</u>	<u>Chemical</u>	<u>Est. Amount</u>	<u>Date Reported</u>	<u>Agency Response</u>
9/29/76	Brine	5000 gal.	11/1/76	Upset by LTRCA.
3/4/77	Brine	1500 gal.	3/4/77	None

- d. Are any of the EPA proposed (40 CFR 116) list of "hazardous" chemicals stored or handled in amounts equal to or greater than the proposed "hazardous quantity" (40 CFR 118) (see attached list on Pages 51a-51e)? Yes

If yes - show as follows:

<u>Chemical</u>	<u>"Hazardous Quantity"</u>	<u>Quantity Typically On Hand</u>
Calcium Hypochlorite	1 lb.	480 TONS
Calcium Oxide	500 lbs.	10 TONS
Chlorine	1 lb.	700 TONS
Chloroform	10 lb.	100 TONS
Cyclohexane	100 lbs.	700 lbs.
Hydrochloric Acid	500 lbs.	130 TONS
Sodium Hydroxide	100 lbs.	1200 TONS
Sodium Sulfide	100 lbs.	5 TONS
Sulfuric Acid	100 lbs.	280 TONS
Zinc Chloride	100 lbs.	80 TONS

TABLE I. PROPOSED LIST OF HAZARDOUS SUBSTANCES

Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)
Acetaldehyde	\$ 10.00	100 (45.4)	Ammonium Hypophosphite	\$ 1.50	500 (227)
Acetic Acid	10.00	100 (45.4)	Ammonium Iodide	0.98	500 (227)
Acetic Anhydride	8.80	100 (45.4)	Ammonium Nitrate	0.93	500 (227)
Acetone Cyanchydrin	8.80	100 (45.4)	Ammonium Oxalate	1.50	500 (227)
Acetyl Bromide	1.50	500 (227)	Ammonium Pentaborate	1.50	500 (227)
Acetyl Chloride	1.50	500 (227)	Ammonium Persulfate	1.50	500 (227)
Acrolein	880.00	1 (0.454)	Ammonium Silicofluoride	7.50	100 (45.4)
Acrylonitrile	8.80	100 (45.4)	Ammonium Sulfamate	0.93	500 (227)
Adiponitrile	1.80	500 (227)	Ammonium Sulfide	1.50	500 (227)
Aldrin	360.00	1 (0.454)	Ammonium Sulfite	1.50	500 (227)
Allyl Alcohol	100.00	10 (4.54)	Ammonium Tartrate	1.50	500 (227)
Allyl Chloride	1.00	100 (45.4)	Ammonium Thiocyanate	0.98	500 (227)
Aluminum Fluoride	1.20	500 (227)	Ammonium Thiosulfate	0.98	500 (227)
Aluminum Sulfate	1.20	500 (227)	Amyl Acetate	2.30	100 (45.4)
Ammonia	8.80	100 (45.4)	Aniline	7.50	100 (45.4)
Ammonium Acetate	0.98	500 (227)	Antimony Pentachloride	6.20	100 (45.4)
Ammonium Benzoate	1.50	500 (227)	Antimony Pentafluoride	6.20	100 (45.4)
Ammonium Bicarbonate	1.50	500 (227)	Antimony Potassium Tartrate	6.20	100 (45.4)
Ammonium Bichromate	1.50	500 (227)	Antimony Tribromide	6.20	100 (45.4)
Ammonium Bifluoride	1.50	500 (227)	Antimony Trichloride	6.20	100 (45.4)
Ammonium Bisulfite	1.50	500 (227)	Antimony Trifluoride	6.20	100 (45.4)
Ammonium Bromide	1.50	500 (227)	Antimony Trioxide	6.20	100 (45.4)
Ammonium Carbamate	1.50	500 (227)	Arsenic Acid	6.20	100 (45.4)
Ammonium Carbonate	0.98	500 (227)	Arsenic Disulfide	3.60	100 (45.4)
Ammonium Chloride	1.50	500 (227)	Arsenic Pentoxide	62.00	10 (4.54)
Ammonium Chromate	1.50	500 (227)	Arsenic Trichloride	6.20	100 (45.4)
Ammonium Citrate	1.50	500 (227)	Arsenic Trioxide	62.00	10 (4.54)
Ammonium Fluoborate	1.50	500 (227)	Arsenic Trisulfide	36.00	10 (4.54)
Ammonium Fluoride	0.98	500 (227)	Barium Cyanide	750.00	1 (0.454)
Ammonium Hydroxide	10.00	100 (45.4)	Benzene	1.00	100 (45.4)

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.<sup>2</sup>Spills of this magnitude must be reported.ORIGINAL  
(Red)

TABLE I. PROPOSED LIST OF HAZARDOUS SUBSTANCES (Cont'd)

Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)
Benzoic Acid	\$ 1.50	500 (227)	Chromic Acetate	\$ 1.50	500 (227)
Benzonitrile	7.50	100 (45.4)	Chromic Acid	0.98	500 (227)
Benzoyl Chloride	1.50	500 (227)	Chromic Sulfate	1.50	500 (227)
Benzyl Chloride	0.72	500 (227)	Chromous Chloride	0.70	500 (227)
Beryllium Chloride	1.20	500 (227)	Chromyl Chloride	1.50	500 (227)
Beryllium Fluoride	6.20	100 (45.4)	Cobaltous Bromide	6.20	100 (45.4)
Beryllium Nitrate	6.20	100 (45.4)	Cobaltous Fluoride	6.20	100 (45.4)
Butyl Acetate	8.80	100 (45.4)	Cobaltous Formate	6.20	100 (45.4)
Butylamine	10.00	100 (45.4)	Cobaltous Sulfamate	6.20	100 (45.4)
Butyric Acid	2.00	500 (227)	Coumaphos	750.00	1 (0.454)
Cadmium Acetate	750.00	1 (0.454)	Cresol	75.00	10 (4.54)
Cadmium Bromide	620.00	1 (0.454)	Cupric Acetate	62.00	10 (4.54)
Cadmium Chloride	620.00	1 (0.454)	Cupric Acetoarsenite	36.00	10 (4.54)
Calcium Arsenate	3.60	100 (45.4)	Cupric Chloride	62.00	10 (4.54)
Calcium Arsenite	7.50	100 (45.4)	Cupric Formate	62.00	10 (4.54)
Calcium Carbide	1.20	500 (227)	Cupric Glycinate	62.00	10 (4.54)
Calcium Chromate	1.50	500 (227)	Cupric Lactate	62.00	10 (4.54)
Calcium Cyanide	750.00	1 (0.454)	Cupric Nitrate	62.00	10 (4.54)
Calcium Dodecylbenzene Sulfonate	75.00	10 (4.54)	Cupric Oxalate	36.00	10 (4.54)
Calcium Hydroxide	1.50	500 (227)	Cupric Subacetate	62.00	10 (4.54)
Calcium Hypochlorite	490.00	1 (0.454)	Cupric Sulfate	62.00	10 (4.54)
Calcium Oxide	0.98	500 (227)	Cupric Sulfate, Ammoniated	62.00	10 (4.54)
Carbaryl	75.00	10 (4.54)	Cupric Tartrate	36.00	10 (4.54)
Captan	750.00	1 (0.454)	Cuprous Bromide	36.00	10 (4.54)
Carbon Disulfide	7.50	100 (45.4)	Cyanogen Chloride	750.00	1 (0.454)
Chlordane	360.00	1 (0.454)	Cyclohexane	1.00	100 (45.4)
Chlorine	880.00	1 (0.454)	2,4-D Acid	36.00	10 (4.54)
Chlorobenzene	36.00	10 (4.54)	2,4-D Esters	36.00	10 (4.54)
Chloroform	36.00	10 (4.54)	Dalapon	75.00	10 (4.54)
Chlorosulfonic Acid	7.50	100 (45.4)	DDT	360.00	1 (0.454)

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.<sup>2</sup>Spills of this magnitude must be reported.Division  
(Red)

TABLE I. PROPOSED LIST OF HAZARDOUS SUBSTANCES (Cont'd)

Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)
Diazinon	\$360.00	1 (0.454)	Formaldehyde	\$ 10.00	100 (45.4)
Dicamba	7.50	100 (45.4)	Formic Acid	10.00	500 (227)
Dichlobenil	7.50	100 (45.4)	Fumaric Acid	1.50	500 (227)
Dichlone	750.00	1 (0.454)	Furfural	1.50	100 (45.4)
Dichlorvos	750.00	1 (0.454)	Guthion	360.00	1 (0.454)
Dieckrin	750.00	1 (0.454)	Heptachlor	360.00	1 (0.454)
Diethylamine	8.80	100 (45.4)	Hydrochloric Acid	1.50	500 (227)
Dimethylamine	8.80	100 (45.4)	Hydrofluoric Acid	2.00	500 (227)
Dinitrobenzene	7.50	100 (45.4)	Hydrogen Cyanide	1000.00	1 (0.454)
Dinitrophenol	75.00	10 (4.54)	Hydroxylamine	1.50	500 (227)
Diquat	7.50	100 (45.4)	Isoprene	1.00	100 (45.4)
Disulfoton	750.00	1 (0.454)	Isopropanolamine		
Diuron	75.00	10 (4.54)	Dodecylbenzene Sulfonate	75.00	10 (4.54)
Dodecylbenzene Sulfonic Acid	75.00	10 (4.54)	Kelthane	3.60	100 (45.4)
Dursban	750.00	1 (0.454)	Lead Acetate	1.20	500 (227)
Endosulfan	750.00	1 (0.454)	Lead Arsenate	0.70	500 (227)
Endrin	360.00	1 (0.454)	Lead Chloride	1.20	500 (227)
Ethion	750.00	1 (0.454)	Lead Fluoborate	1.20	500 (227)
Ethylbenzene	2.30	100 (45.4)	Lead Fluoride	3.60	100 (45.4)
Ethylenediamine	8.80	100 (45.4)	Lead Iodide	0.79	500 (227)
EDTA	6.72	500 (227)	Lead Nitrate	1.20	500 (227)
Ferric Ammonium Citrate	0.72	100 (45.4)	Lead Stearate	1.20	500 (227)
Ferric Ammonium Oxalate	6.20	100 (45.4)	Lead Sulfate	0.70	500 (227)
Ferric Chloride	6.20	100 (45.4)	Lead Sulfide	3.60	100 (45.4)
Ferric Fluoride	6.20	100 (45.4)	Lead Tetraacetate	1.20	500 (227)
Ferric Nitrate	6.20	100 (45.4)	Lead Thiocyanate	0.70	500 (227)
Ferric Sulfate	6.20	100 (45.4)	Lead Thiosulfate	0.70	500 (227)
Ferrous Ammonium Sulfate	6.20	100 (45.4)	Lead Tungstate	0.70	500 (227)
Ferrous Chloride	6.20	100 (45.4)	Lindane	750.00	1 (0.454)
Ferrous Sulfate	6.20	100 (45.4)	Lithium Dichromate	0.98	500 (227)
			Lithium Chromate	0.98	500 (227)

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.

<sup>2</sup>Spills of this magnitude must be reported.

TABLE I. PROPOSED LIST OF HAZARDOUS SUBSTANCES (Cont'd)					
Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)
Malathion	\$750.00	1 (0.454)	Parathion	\$360.00	1 (0.454)
Maleic Acid	1.50	500 (227)	Pentachlorophenol	360.00	1 (0.454)
Maleic Anhydride	1.80	500 (227)	Phenol	75.00	10 (4.54)
Mercuric Acetate	620.00	1 (0.454)	Phosgene	1.50	500 (227)
Mercuric Cyanide	620.00	1 (0.454)	Phosphoric Acid	2.00	500 (227)
Mercuric Nitrate	620.00	1 (0.454)	Phosphorus	360.00	1 (0.454)
Mercuric Sulfate	620.00	1 (0.454)	Phosphorus Oxychloride	1.50	500 (227)
Mercuric Thiocyanate	360.00	1 (0.454)	Phosphorus Pentasulfide	7.50	100 (45.4)
Mercurous Nitrate	620.00	1 (0.454)	Phosphorus Trichloride	1.50	500 (227)
Methoxychlor	360.00	1 (0.454)	Polychlorinated Biphenyls	360.00	1 (0.454)
Methyl Mercaptan	10.00	10 (4.54)	Potassium Arsenate	6.20	100 (45.4)
Methyl Methacrylate	0.20	500 (227)	Potassium Arsenite	6.20	100 (45.4)
Methyl Parathion	36.00	10 (4.54)	Potassium Bichromate	1.50	500 (227)
Mevinphos	1000.00	1 (0.454)	Potassium Chromate	1.50	500 (227)
Monethylamine	10.00	100 (45.4)	Potassium Cyanide	750.00	1 (0.454)
Monomethylamine	8.80	100 (45.4)	Potassium Hydroxide	4.90	100 (45.4)
Naled	360.00	1 (0.454)	Potassium Permanganate	75.00	10 (4.54)
Naphthalene	36.00	10 (4.54)	Propionic Acid	2.00	500 (227)
Naphthenic Acid	750.00	1 (0.454)	Propionic Anhydride	2.00	500 (227)
Nickel Ammonium Sulfate	1.20	500 (227)	Propyl Alcohol	2.00	500 (227)
Nickel Chloride	1.20	500 (227)	Pyrethrins	7.50	100 (45.4)
Nickel Formate	6.20	100 (45.4)	Quinoline	750.00	1 (0.454)
Nickel Hydroxide	3.60	100 (45.4)	Resorcinol	75.00	10 (4.54)
Nickel Nitrate	1.20	500 (227)	Selenium Oxide	7.50	100 (45.4)
Nickel Sulfate	1.20	500 (227)	Sodium	7.50	100 (45.4)
Nitric Acid	10.00	100 (45.4)	Sodium Arsenate	7.50	100 (45.4)
Nitrobenzene	1.50	500 (227)	Sodium Arsenite	7.50	100 (45.4)
Nitrogen Dioxide	10.00	100 (45.4)	Sodium Bichromate	0.98	500 (227)
Nitrophenol	75.00	10 (4.54)	Sodium Bifluoride	1.50	500 (227)
Paraformaldehyde	7.50	100 (45.4)	Sodium Bisulfite	1.50	500 (227)

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.

<sup>2</sup>Spills of this magnitude must be reported.

TABLE I. PROPOSED LIST OF HAZARDOUS SUBSTANCES (Cont'd)

Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)	Material	Rate of Penalty <sup>1</sup> (price per pound)	Harmful Quantity <sup>2</sup> in pounds (Kilograms)
Sodium Chromate	\$ 1.50	500 (227)	Uranyl Sulfate	\$ 1.20	500 (227)
Sodium Cyanide	750.00	1 (0.454)	Vanadium Pentoxide	6.20	100 (45.4)
Sodium Dodecylbenzene Sulfonate	75.00	500 (227)	Vanadyl Sulfate	6.20	100 (45.4)
Sodium Fluoride	1.50	500 (227)	Vinyl Acetate	8.80	100 (45.4)
Sodium Hydrosulfide	1.50	500 (227)	Xylene	2.30	100 (45.4)
Sodium Hydroxide	7.50	100 (45.4)	Xylenol	7.50	100 (45.4)
Sodium Hypochlorite	490.00	1 (0.454)	Zectran	7.50	100 (45.4)
Sodium Methylate	7.50	100 (45.4)	Zinc Acetate	6.20	100 (45.4)
Sodium Nitrate	75.00	10 (4.54)	Zinc Ammonium Chloride	6.20	100 (45.4)
Sodium Phosphate, Monobasic	1.50	500 (227)	Zinc Bichromate	6.20	100 (45.4)
Sodium Phosphate, Dibasic	0.98	500 (227)	Zinc Borate	6.20	100 (45.4)
Sodium Phosphate, Tribasic	1.50	500 (227)	Zinc Bromide	6.20	100 (45.4)
Sodium Selenite	7.50	100 (45.4)	Zinc Carbonate	3.60	100 (45.4)
Sodium Sulfide	7.50	100 (45.4)	Zinc Chloride	6.20	100 (45.4)
Stannous Fluoride	1.50	100 (45.4)	Zinc Cyanide	360.00	1 (0.454)
Strontium Chromate	0.72	500 (227)	Zinc Fluoride	6.20	100 (45.4)
Strychnine	3.60	100 (45.4)	Zinc Formate	6.20	100 (45.4)
Styrene	1.00	100 (45.4)	Zinc Hydrosulfite	6.20	100 (45.4)
Sulfuric Acid	10.00	100 (45.4)	Zinc Nitrate	6.20	100 (45.4)
Sulfur Monochloride	1.50	500 (227)	Zinc Phenolsulfonate	6.20	100 (45.4)
2,4,5-T Acid	360.00	1 (0.454)	Zinc Phosphide	3.60	100 (45.4)
2,4,5-T Esters	360.00	1 (0.454)	Zinc Potassium Chromate	3.60	100 (45.4)
TDE	360.00	1 (0.454)	Zinc Silicofluoride	6.20	100 (45.4)
Tetraethyl Lead	360.00	1 (0.454)	Zinc Sulfate	6.20	100 (45.4)
Tetraethyl Pyrophosphate	100.00	10 (4.54)	Zinc Sulfate Monohydrate	6.20	100 (45.4)
Toluene	1.00	100 (45.4)	Zirconium Acetate	1.20	500 (227)
Toxaphene	360.00	100 (45.4)	Zirconium Nitrate	1.20	500 (227)
Trichlorfon	7.50	10 (4.54)	Zirconium Oxychloride	1.20	500 (227)
Trichlorophenol	360.00	1 (0.454)	Zirconium Potassium Fluoride	1.20	500 (227)
Triethanolamine Dodecylbenzene Sulfonate	75.00	10 (4.54)	Zirconium Sulfate	1.20	500 (227)
Triethylamine	8.80	100 (45.4)	Zirconium Tetrachloride	1.20	500 (227)
Trimethylamine	8.80	100 (45.4)			
Uranium Peroxide	0.70	500 (227)			
Uranyl Acetate	1.20	500 (227)			
Uranyl Nitrate	1.20	500 (227)			

<sup>1</sup>Will be used to determine amount of fine under Section 311 of the FWPCA.<sup>2</sup>Spills of this magnitude must be reported.

SCD Environmental Audit Protocol

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Part C - Water Pollution Control Program Review (Cont'd)Section 7 - Chemical Spill Prevention and Control (Cont'd)

- e. List all chemical storage tanks with capacities of 2000 gallons or greater:

<u>Chemical</u>	<u>Tank No.</u>	<u>Capacity</u>	<u>Diked?</u>	<u>Dike Adequate?</u> <u>(Capacity &amp; Condition)</u>
-----------------	-----------------	-----------------	---------------	--

SEE LISTING on pages 52a, b + c

Comments: \_\_\_\_\_

Corrective actions (as applicable), relative to diking: \_\_\_\_\_

\* STUDY TO DETERMINE SPECIFIC CONTAINMENT NEEDS AND PRIORITIES WILL BE UNDERTAKEN.

<u>Vessel #</u>	<u>Product</u>	<u>Capacity (Gallons)</u>	<u>Diked</u>	<u>Curbed</u>	<u>Neither</u>	<u>ORIGINAL (Red)</u>
1	HCl	16,000			X	
2	HCl	16,000			X	
3	HCl	16,000			X	
4	Rich Acid	16,000		X		
5	Azeotrope	16,000		X		
6	HCl	18,000		X		Not used
7	Intermediate Crude	10,000			X	
F401A	Crude	13,700	X			
F401B	Crude	13,700	X			
F310	Strong & Spent H <sub>2</sub> SO <sub>4</sub>	15,900	X			
8	CH <sub>3</sub> Cl	30,000	X			
9	CH <sub>3</sub> Cl	30,000	X			
10	CH <sub>3</sub> Cl	30,000	X			
11	CH <sub>3</sub> Cl	30,000	X			
12	Cl <sub>2</sub> Rec	4,500			X	
13	Cl <sub>2</sub> Rec	4,500			X	
F606	Batch Kettle	7,400			X	
414A	CH <sub>2</sub> Cl <sub>2</sub> or CH <sub>3</sub> Cl <sub>3</sub>	4,200			X	
414B	CH <sub>2</sub> Cl <sub>2</sub> or CH <sub>3</sub> Cl <sub>3</sub>	4,200			X	
414C	CH <sub>2</sub> Cl <sub>2</sub>	4,200			X	
F411A	CH <sub>3</sub> Cl	6,850			X	Not Norm Used
F411B	CH <sub>2</sub> Cl	6,850			X	Not Norm Used
F412	CH <sub>3</sub> Cl or CH <sub>2</sub> Cl <sub>2</sub>	13,700			X	
F513	CH <sub>2</sub> Cl <sub>2</sub>	13,700			X	

<u>Vessel #</u>	<u>Product</u>	<u>Capacity (Gallons)</u>	<u>Diked</u>	<u>Curbed</u>	<u>Neither</u>	<u>ORIGINAL (Red)</u>
F512	CH <sub>2</sub> Cl <sub>2</sub>	13,700			X	
F511	CH <sub>2</sub> Cl <sub>2</sub>	13,700			X	
F700A	CHCl <sub>3</sub> NF	6,850			X	
F700B	CCl <sub>4</sub>	6,850			X	
F701	CHCl <sub>3</sub>	18,000			X	
14	MeOH	6,000	X			
15	ZnCl <sub>2</sub>	10,000			X	
16	ZnCl <sub>2</sub>	2,500			X	
17	Lime	6,000			X	
18	Dianodic	1,000			X	
F601	CH <sub>2</sub> Cl <sub>2</sub> Bottoms	10,000			X	
F611	CH <sub>2</sub> Cl <sub>2</sub> or CHCl <sub>3</sub>	10,000			X	Not Usa.
F613	CHCl <sub>3</sub> Bottoms	10,000			X	
F615	CCl <sub>4</sub>	10,000			X	
8201	Vent Condenser	6,000			X	
F514	Slop	3,000			X	
F612	CH <sub>2</sub> Cl <sub>2</sub> Bottoms	10,000			X	
F614	CCl <sub>4</sub>	10,000			X	
F616	CH <sub>2</sub> Cl <sub>2</sub>	51,454			X	
F617	CHCl <sub>3</sub>	101,464			X	
F618	CH <sub>2</sub> Cl <sub>2</sub>	101,464			X	
19	MeOH	500,000	X			
20	NaOH	6,000			X	

		<u>Capacity (Gallons)</u>	<u>Diked</u>	<u>Other Containment</u>	<u>No Containment</u>
1.	Pure Brine	100,000			X
2.	Impure Condensate	100,000		X	
3.	3 Brine Filters	1,000 ea.		X	
4.	Brine Storages -				
	2 Spent Brine	10,000 ea.		X	
	2 Saturated Brine	20,000 ea.		X	
	1 Circulating	10,000 ea.		X	
5.	4 Head Tanks	10,000 ea.		X	
6.	Brine Filters -				
	3 Pit	600 ea.		X	
	5 Sand	6,000 ea.		X	
7.	HCl	14,000		X	
8.	2 Bell Settlers Treated Brines	112,000 ea.		X	
9.	Lime Storages -				
	1 Emergency	10,000		X	
	2 Drums	6,000 ea.		X	
10.	Mill H <sub>2</sub> O	100,000			X
11.	4 Cl <sub>2</sub> Receivers	5,600 ea.		X	
12.	3 Cl <sub>2</sub> Storages	89,000		X	
13.	Cl <sub>2</sub> - 4 Barge Storages	30,000 ea.			X
14.	50% NaOH Storage (Barge)	305,000			X
15.	3 50% NaOH Storages	1001000			X
16.	70% NaOH Storage	100,000			X
17.	Raw Brine	100,000			X
18.	Pond H <sub>2</sub> O Injection Tank	40,000			X
19.	Weak Brine	40,000			
20.	Oil Storage Temp-Well Development	2,000	X		
21.	H <sub>2</sub> SO <sub>4</sub> Storages -				
	1 Weak	18,000	X		
	1 Strong	18,000	X		

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 7 - Chemical Spill Prevention and Control (Cont'd)

- f. Are diking sumps, pumps, valves, etc. for chemical storages listed above adequate and in good condition? No

If no - comment: Existing dikes and related equipment

\* should be evaluated as part of the planned  
contingency review.

Corrective actions (as applicable): As determined by  
planned evaluation.

- g. Is a satisfactory level of administrative control maintained over the drainage of liquids collected within the diked areas surrounding chemical storage tanks? No Are there written instructions? No

Comments: \_\_\_\_\_

\* Corrective actions (as applicable): These will be developed

- h. Are administrative procedures and spill prevention and control facilities at chemical loading/unloading locations adequate? No

If no - give recommended corrective measures (as applicable): \_\_\_\_\_

\* To be developed as part of the overall  
secondary containment program for chemical  
liquids.

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Part C - Water Pollution Control Program Review (Cont'd) (Red)

Section 7 - Chemical Spill Prevention and Control (Cont'd)

- i. Are spill prevention and control facilities in warehouses and at outside storage pad areas adequate? Yes

If no - discuss: \_\_\_\_\_

Corrective actions (as applicable): \_\_\_\_\_

- j. How are tank truck, tank car, drum and cylinder heels disposed of?

Sodium Hydroxide - Contained and pumped to  
Wetland Treatment Facility  
Chloroform - Returned to process

Are these procedures satisfactory? Yes

If no - give recommendations: \_\_\_\_\_

- k. Can production area spills or leaks be directly discharged to the receiving waters? Yes If yes - what steps are planned to prevent this from happening? This problem will be addressed

\* by planned secondary containment review.

SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 7 - Chemical Spill Prevention and Control (Cont'd)

1. Are Maintenance Dept. supervisory and hourly personnel well trained in the environmental precautions to be observed in draining and cleaning process vessels and lines prior to working on them? No  
Are there written instructions? No

Comments: \_\_\_\_\_

Corrective measures (as applicable): Plant will develop  
written instructions and suitable training  
sessions will be held.

- m. How are unrecoverable "off-grade" or contaminated chemicals disposed of? By Outside Contractor

Are these procedures satisfactory? Yes

If no - comment: \_\_\_\_\_

Corrective measures (as applicable): \_\_\_\_\_

ORIGINAL  
(Red).SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 7 - Chemical Spill Prevention and Control (Cont'd)n. Are pumps generally maintained in good condition? QuestionableComments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Where does pump packing or seal leakage drain to? In many cases  
To process sewer.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_★ Corrective measures (as applicable): Pump glands, seals,  
packings, etc. should be maintained in good condition.  
Any consistent leakage or drips should be  
collected and sent to new distillation unit. Cooling  
pump drainage should be directed to new neutralization  
facilities.o. Could failure of any non-contact coolers or heaters result in a  
direct (untreated) discharge of EPA proposed "hazardous" chemicals  
to the receiving waterbody? Yes If yes - what can be done to  
prevent this from happening? \_\_\_\_\_  
\_\_\_\_\_★ Program should be developed to minimize  
potential discharges of this nature.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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ORIGINAL  
(Red)

Part C - Water Pollution Control Program Review (Cont'd)

Section 7 - Chemical Spill Prevention and Control (Cont'd)

- p. Are sewer entry points and manholes clearly identified (process, sanitary, clean water, etc.)? No

★ Comments - including any recommendations: This should be  
done after compliance program is completed  
2/1/77.

- q. Is there an updated sewer system map? No

If not - when will one be available? about 2/1/77

★ Comments: It is important to have an up-dated  
large scale plot plan showing the complete  
sewer network.

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Part C - Water Pollution Control Program Review (Cont'd) ORIGINAL

Section 8 - Process and Cooling Water Sources

- a. List sources of process and cooling water as well as typical daily usage:

<u>Source</u>	<u>Process Usage</u>	<u>Cooling Usage</u>
Not covered by this review		

- b. List typical intake analysis of the above waters:

<u>Source</u>	<u>Parameter</u>	<u>Typical Loading Range</u>	<u>Date of Last Analysis</u>
River	TSS	100 - 1000 PPD	1977
	TS	15,000 PPD	
	N <sub>5</sub>	0.01 PPD	
	CN	0.2 - 1 PPD	
	AS	ND	
	Pb	0.1 PPD	
	Mn	25 PPD	
	BOD <sub>5</sub>	125 PPD	
	Cl	2400 PPD	
	C <sub>2</sub> CO <sub>3</sub>	9,000 PPD	
Well	OH	300 PPD	1977
	C <sub>2</sub> CO <sub>3</sub>	28,000 PPD	
	Cl	40,000 PPD	
	TS	80,000 PPD	

Source	Frequency of Analysis	Parameters Checked
Well Water	Twice / week	Chloride, Hardness
	Once / week	CHC's, Manganese
River	Once / week	All NPDES + State Parameters

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 8 - Process and Cooling Water Sources (Cont'd)

- d. Are there any problems associated with the intake quality of the process and cooling waters? Yes

If yes - discuss: Well water is heavily contaminated with heavy chlorides, Calcium, nitrobenzene and perhaps CMPs coming from unlined waste ponds used for the past 23 years. River water has a heavy suspended solids loading.

Corrective actions (as applicable): When NPDES compliance program is completed, there will be no unlined waste ponds in use. Problem caused by old ponds will have to be investigated thoroughly to determine possible corrective actions.

- e. Are cooling water racks used? Yes

If yes - list:

<u>Rack Ident.</u>	<u>Typical Daily Thruput (Recirculation)</u>	<u>Typical Oper. Cycles</u>	<u>Type Treating Agents Used</u>
<u>ECS</u>	<u>172,000 GPM</u>	<u>5</u>	<u>Chromate</u>
<u>CMP</u>	<u>18,000 GPM</u>	<u>3</u>	<u>Chromate</u>

Is there excessive leakage from the cooling water system? Yes (from C)

If yes - discuss: Some cooling rack water in CMP system is being used for process purposes such as in vent scrubbers.

Corrective actions (as applicable): CMP water racks will be put on a controlled blowdown.

SCD Environmental Audit Protocol

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Part C - Water Pollution Control Program Review (Cont'd)

Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants

- a. Is there one or more on-site wastewater treatment facilities currently in operation? Yes

If yes - complete the following:

<u>Nature of Facility</u>	<u>Type of Wastes Treated</u>	<u>Typical Daily Thruput</u>
<u>Mercury Treatment</u>	<u>Flue containing Hg</u>	

- b. Are the existing wastewater treatment facilities functioning as intended? Yes

If no - discuss: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective actions (as applicable) underway or planned: System  
To be renovated and up-graded as part of  
NPDOS Compliance program To meet more  
restrictive Mercury discharge standards effective  
2/1/00.

SCD Environmental Audit Protocol

ORIGINAL

Part C - Water Pollution Control Program Review (Cont'd)

(Red)

Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants (Cont'd)

c. Do State or local regulations require certification of waste treatment plant operators? No

If yes - what certification is required? N.A.

Have any necessary certifications been obtained? N.A.

If yes - list:

<u>Operator</u>	<u>Certificate No.</u>	<u>Date Issued</u>	<u>Expiration Date</u>	<u>Issuing Agency</u>
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If necessary certifications have not been obtained - list corrective measures (as applicable) underway or planned:

d. Are there written operating procedures for existing wastewater treatment facilities? (1) Are they adequate? (1)

Are they posted or readily available to the operators? (1)

(1) Not covered by this review

ORIGINAL  
(Red)SCD Environmental Audit ProtocolPart C - Water Pollution Control Program Review (Cont'd)Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants (Cont'd)

d. (Cont'd)

Comments - including recommended corrective measures (as applicable)

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e. Is housekeeping in and around existing treatment facilities  
satisfactory? Yes

Comments:

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f. Are operators of waste treatment facilities handling sanitary  
wastes immunized against typhoid and tetanus? No Operators involvedOperatorImmunization DateDate Booster Due


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If no - comment (include corrective action as applicable): Immunization needs (if any) of those involved in operating new package secondary treatment unit should be reviewed with the Corporate Medical Dept. and the plant physician.

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SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants (Cont'd)

- g. Will new wastewater treatment facilities begin operation within the next 12 months? Yes

If yes - list:

<u>Facility</u>	<u>Scheduled Start-up</u>
<u>All NPDES Compliance</u>	<u>6/1/77</u>
<u>Program Reauthorized</u>	

- h. Have operating manuals been prepared for the new facilities? No

If not - when will they be available? <sup>about</sup> 6/1/77 Has the overall

responsibility for the operational start-up been assigned? Yes

If yes - to whom? D. P. DeN...

If no - when will this be done? N.A. Has a start-up supervisory crew been selected? No, Yes

If yes - list:

<u>Name</u>	<u>Normal Position</u>	<u>Home Location</u>

If not - when will a start-up supervisory crew be selected? About  
6/1/77

SCD Environmental Audit Protocol

Part C - Water Pollution Control Program Review (Cont'd)

Section 9 - Operation of Existing and/or  
Planned Wastewater Treatment Plants (Cont'd)

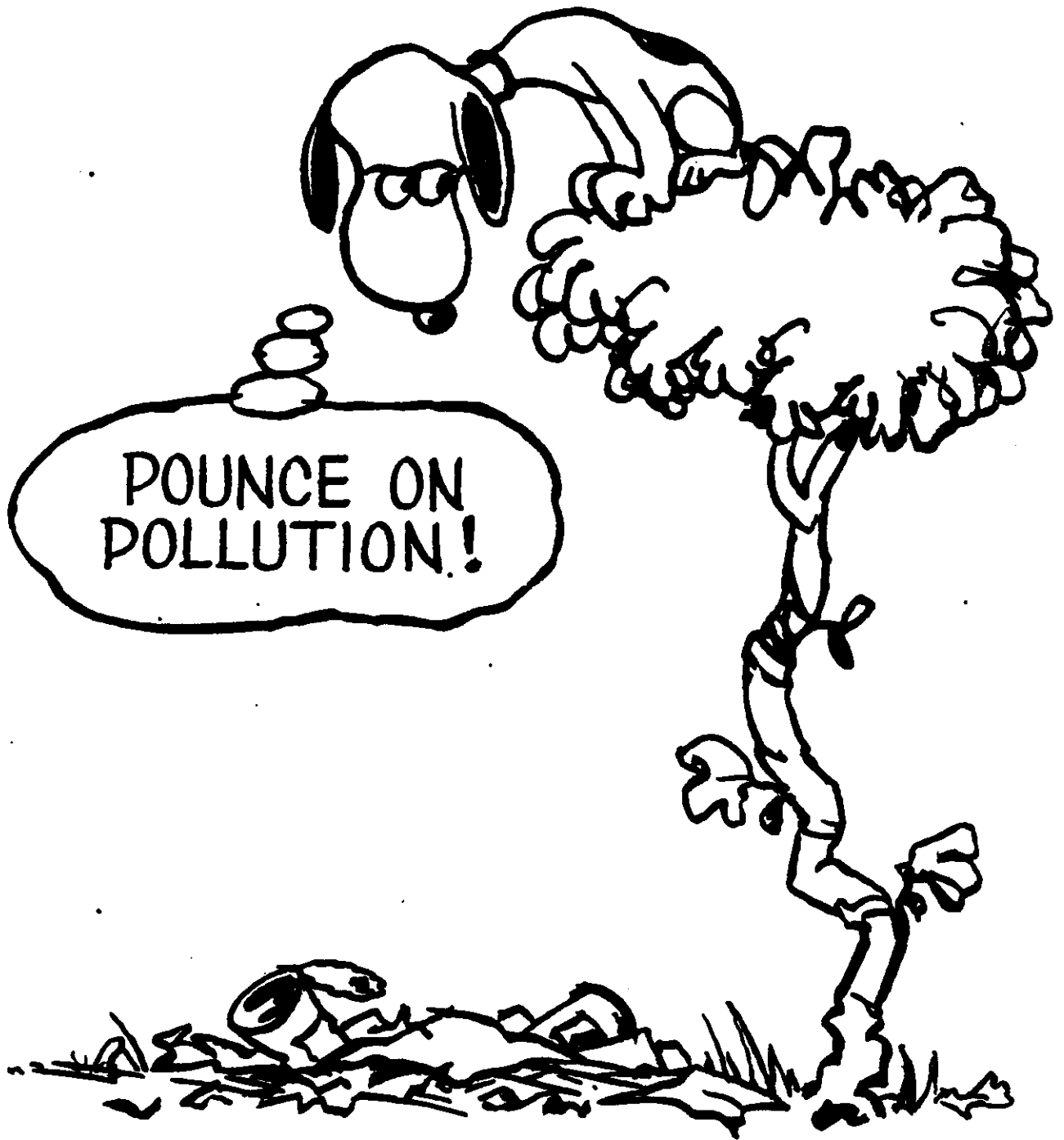
- i. Has a training program for hourly operating personnel of the new treatment facilities been developed? No

If yes - review and comment: Not yet available at time  
of Environmental Review

If no - when will this be done? About 6/1/77

- j. Are there start-up preparations other than those mentioned above which should be started or expedited? No

If yes - comment and give recommendations:



SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review

Section 1 - State/Local Air Permits/Registrations

- a. What is the name, address, and telephone number of the State and/or local air pollution control agency (primary contact office)?

State - W.V. Air Pollution Control Commission  
1558 Washington Street, East  
Charleston, West Virginia 25311  
(304) - 348-2275 or 348-3286

Local - WVAPCC - Northern Panhandle Regional Office  
1911 Woodward Ave.  
Wheeling, W.V. 26003  
(304) - 277-2662 or 277-2751

- b. In what Federal Air Quality Control Region is the plant located?

Stebensburg-Weirton-Wheeling Interstate (W.V. portion)

- c. Which (if any) National Ambient Air Quality Standards are exceeded in the Region (Indicate "exceeded" or "not exceeded")?

	<u>Priority Class.</u>	<u>Primary Stds.</u>	<u>Secondary Stds.</u>
Particulates	<u>I</u>	<u>Exceeded</u>	
Sulfur Oxides	<u>I</u>	<u>Not Exceeded</u>	
Carbon Monoxide	<u>III</u>	<u>Not Exceeded</u>	
Photochem. Oxidants	<u>III</u>	<u>Exceeded</u>	
Hydrocarbons	<u>III</u>	<u>—</u>	
Nitrogen Oxides	<u>III</u>	<u>Not Exceeded</u>	

- d. What air pollutant emissions are limited by State or local regulations?

Particulates, SO<sub>2</sub> (Fuel Combustion), Obnoxious/Odoriferous Gases (H<sub>2</sub>SO<sub>4</sub>, HCl, HNO<sub>3</sub> & H<sub>2</sub>PO<sub>4</sub>)

## Section 1 - State/Local Air Permits/Registrations (Cont'd)

What limitations for these pollutants are applicable to our operations?

<u>Agency</u>	<u>Pollutant</u>	<u>Applicable Limitation(s)</u>
WVAPCC	Sulfur Dioxide	Lbs./Hr equal to $3.1 \times 10^6$ Heat input in millions BTU (1331 PH Total) - Boiler
WVAPCC	Particulates	43.9 Lbs./Hr For 4 Boilers (Total)

SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd) (Red) ORIGINALSection 1 - State/Local Air Permits/Registrations (Cont'd)

- e. Are we currently exceeding any of the above emission limitations?

Yes

If yes - list:

<u>Source(s)</u>	<u>Pollutant</u>	<u>Emission Limit</u>	<u>Actual Emission</u>
Boilers	Particulates	42.9 Lbs./Hr	Approx. 132 Lbs./

- f. Are there one or more compliance schedules relative to emissions which exceed the applicable limitations?
- Yes \*

If yes - list:

<u>Agency</u>	<u>Pollutant</u>	<u>Source</u>	<u>Schedule Milestones</u>
WVAPCC	Particulates	Boilers	
		Receipt of firm vendor proposals	2/15/77
		Place Contract	7/1/77
		Start on-site construction	5/1/78
		Complete construction	12/1/78
		Attain compliance	1/31/79

\* Schedule approved by W.Va. APCC 6/9/77

SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd)Section 1 - State/Local Air Permits/Registrations (Cont'd)

- g. Are we experiencing any difficulties relative to compliance schedules? No If yes - describe and list corrective measures (as appropriate) underway or planned: \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

- h. Are periodic progress reports required relative to the compliance schedule? Yes If yes - have they been submitted to the involved agency as required? Yes If yes - list the last report submitted and the next one due:

<u>Agency</u>	<u>Report Due</u>	<u>Report Submitted</u>
<u>WVAPCC</u>	<u>1/7/77</u>	<u>1/18/77</u>

If not submitted as required - explain why and list planned corrective action (as appropriate): N.A.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

ORIGINAL  
(Red)SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd)Section 1 - State/Local Air Permits/Registrations (Cont'd)

- i. Do State and/or local regulations require registration of emission point sources? Yes

If yes - what sources? \_\_\_\_\_

① Industrial Heat Exchangers

② Incinerators

③ Manufacturing Process Particulate Emission

④ Manufacturing Process Source Operations which emit SO<sub>2</sub>

- j. What sources have we registered (indicate whether State or local registrations)?

<u>Agency</u>	<u>Source No.</u>	<u>Description</u>	<u>Date Registered</u>
WVAPCC	1	HCL Process Storage	10/2/76
	2	HCL Loading Storage	10/2/76
	3	HCL T/C Loading	10/2/76
	Stack #1	Boilers 1	8/3/76
	#2	2	8/3/76
	#3	3	8/3/76
	#4	4	8/3/76
	—	Waste Gas Flare	8/3/76

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

k. Have we failed to register any sources that should have been? No

If yes - list:

Source Description

Pollutant(s) Emitted

N.A.

Explain failure to register and describe corrective actions (as appropriate) planned: N.A.

1. Do State or local regulations require that construction (or combined construction/operating) permits be obtained? Yes

If yes - for what? Permits for Construction, Modification or Relocation of Stationary Sources of Air Pollutants - (Regulation XIII)

ORIGINAL  
(Red)

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

- m. List any current State or local air pollution control construction (or combined construction/operating) permits:

<u>Permit Type</u>	<u>Agency</u>	<u>Permit No.</u>	<u>Facility</u>	<u>Date Issued</u>	<u>Expiration Date</u>
- None -					

- n. Have we failed to obtain any construction (or combined construction/operating) permits which we currently require? No

If yes - list:

<u>Facility</u>	<u>Date Construction Started (or will start)</u>

SCD Environmental Audit Protocol

ORIGINAL  
7/21

Part D - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

n. (Cont'd)

Explain failure to obtain permits and describe corrective actions  
(as appropriate) planned: N.A.

o. Do State or local regulations require operating permits (other  
than construction/operating permits)? No

If yes - for what?

p. List any current State or local air pollution control operating  
permits held:

<u>Agency</u>	<u>Permit No.</u>	<u>Facility</u>	<u>Date Issued</u>	<u>Expiration Date</u>
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None

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd) <sup>ORIGINAL</sup>

(Red)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

p. (Cont'd)

<u>Agency</u>	<u>Permit No.</u>	<u>Facility</u>	<u>Date Issued</u>	<u>Expiration Date</u>
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q. Have we failed to obtain any required State or local operating permits? No.

If yes - list the facilities or sources involved and the corrective actions (as appropriate) planned: N.A.


r. Are any lists of products made and production capacities given in State or local permit applications or registrations still correct?

Yes

If no - give details: N.A.


ORIGINAL  
(Red)

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 1 - State/Local Air Permits/Registrations (Cont'd)

r. (Cont'd)

Has the involved agency been notified? N.A.

If no - why not? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Planned corrective action (as appropriate): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

s. Does current data indicate that any emission levels are higher than shown in source registrations or permit applications? No

If yes - give details: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Has the involved agency been notified? N.A.

If no - why not? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Planned corrective action (as appropriate): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Section 1 - State/Local Air Permits/Registrations (Cont'd)

<u>Emission Source</u>	<u>Pollutant</u>	<u>Data Source</u>	<u>Data Date</u>
Boiler Stacks	Particulates	Stack Monitoring	1976
	Sulfur Dioxide	Stack Monitoring	1976
		+ Calculations From S in Coal	
Storage/Loading	HCl	Engineering Estimates	9/76
Waste Gas Flare	Hydrocarbons	Engineering Estimates	11/76

**Comments:**

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd) (Red) ORIGINAL

Section 1 - State/Local Air Permits/Registrations (Cont'd)

u. Has the State implementation plan to attain ambient air quality standards been remanded by the USEPA for revisions? Yes

If yes - for what pollutants? Photochemical Oxidants - Statewide  
Particulates - Northeast Arkansas and Kanawha County only

v. Has the State issued, or are they preparing, proposed modifications to their air pollution control regulations? Yes

If yes - what changes applicable to our operations are proposed?

<u>Parameter</u>	<u>Proposed Changes</u>
<u>Sulfur Dioxide</u>	<u>For electric utility power plants only</u>

Comments: Not directly applicable to Monroville  
South plant operations.

w. Do State air regulations require the preparation of an Air Pollution Episode Action Plan describing abatement steps to be taken by the plant in the event an air pollution alert or emergency is declared? Yes If yes - has one been prepared? No

If yes - list:

<u>Date Prepared</u>	<u>Date Submitted to Agency</u>	<u>Plan Current?</u>

ORIGINAL  
(Red)SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd)Section 1 - State/Local Air Permits/Registrations (Cont'd)

w. (Cont'd)

Comments: Air pollution Episode plans are required for facilities emitting 100 tons/yr or more from a stationary source in a region classified Priority I or II for the poll.

If required - but not submitted or not current - list corrective actions (as appropriate): Plan is to be prepared by

★

Weeks.

x. Are there known or potential air pollution control problems

other than those covered above (e.g., fluoride emissions)? Yes

If yes - discuss: Decomposition of hypochlorite in spent lime pond and subsequent evolution of gas (Cl<sub>2</sub>). This occurs when atmospheric conditions are  
① High humidity ② Little or no wind ③ Inversions

SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd) **ORIGINAL**  
(Red)Section 2 - Boiler Operations

- a. Does the Works generate all or part of the steam it uses?
- Yes

If yes - complete the following:

<u>Boiler No.</u>	<u>Capacity</u>	<u>Primary Fuel</u>	<u>Auxiliary Fuel</u>	<u>Means of Particulate Cont</u>
1	60 M Lbs./Hr.	Coal	CH <sub>4</sub>	Attilines in S.
2	60 M Lbs./Hr.	Coal	H <sub>2</sub>	" "
3	100 M Lbs./Hr.	Coal	None	" "
4	100 M Lbs./Hr.	Coal	None	" "

- b. Can or do any of the boilers burn materials other than fossil fuels?
- Yes
- If yes - list boilers and non-fossil fuel involved:

No. 1 Boiler - CH<sub>4</sub> (limited quantities)No. 2 Boiler - H<sub>2</sub> (limited quantities)Are there any problems related to the use of non-fossil fuels? No

If yes - describe and indicate corrective measures (as appropriate) underway or planned: \_\_\_\_\_



SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 2 - Boiler Operations (Cont'd)

e. Are the emission measurement devices listed above operating satisfactorily? N.A.

If no - describe problems: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective measures (as appropriate): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

f. Describe the appearance of the boiler stack plumes: Plumes are  
Typically - blue-gray to light gray in color.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit ProtocolPart D - Air Pollution Control Program Review (Cont'd)Section 3 - Abnormal Emissions

- a. Has an "Abnormal Emission Prevention, Control, and Countermeasure (AE-SPCC) Plan been prepared? No Is it current (particularly with respect to regulatory agency contacts, and plant response team names and phone numbers)? N.A. Is it readily available throughout the plant? N.A.

Comments: The South plant was an ICD Location prior to 6/1/76. These plans were prepared by SCD plants in

- b. Does the AE-SPCC Plan appear to have any significant flaws or omissions? N.A.

If yes - list: \_\_\_\_\_

Corrective measures (as appropriate): An AE-SPCC plan should be prepared to cover South plant operations.

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 3 - Abnormal Emissions (Cont'd)

- c. Do State and/or local air pollution control regulations require reporting of abnormal emissions? Yes If yes - what abnormal emissions must be reported? Those which cause or contribute to objectionable odors (Regulation IV - Section 2). Need for reporting other abnormal emissions is implied rather than specified in WUAPCC Regulations. Plant policy is to report all significant abnormal emissions to WUAPCC.
- How are abnormal emissions to be reported? By Telephone to the Wheeling office of the WUAPCC. A confirming written report would be provided if requested by the Agency.

- d. Have we submitted all required abnormal emission reports? (1)

If yes - list (for past 12 months):

<u>Date</u>	<u>Pollutant</u>	<u>Amt. Emitted</u>	<u>Regulatory Limit</u>	<u>Agency</u>	<u>Date Notified</u>
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(1) Not covered by this review

If no - why not? \_\_\_\_\_

SCD Environmental Audit Protocol

ORIGINAL  
(Red)

Part D - Air Pollution Control Program Review (Cont'd)

Section 3 - Abnormal Emissions (Cont'd)

d. (Cont'd)

Corrective measures (as applicable) underway or planned: N.A.

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e. Have there been any complaints regarding emissions (including odors) from neighbors in the past 12 months? Yes

If yes - list:

<u>Date</u>	<u>Complaint</u>	<u>Received From</u>	<u>Action Taken</u>
<u>Various</u>	<u>Chlorine Fumes</u>	<u>Country Club</u>	<u>No Specific</u>
		<u>Patrons</u>	
	<u>(Informal comments on occasional noticeable</u>		
	<u>Chlorine odor)</u>		

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f. Do procedures for handling neighbor complaints appear satisfactory?

Yes

If no - recommended corrective action (as appropriate):

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SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd)

Section 3 - Abnormal Emissions (Cont'd)

- g. Have regulatory agencies taken any enforcement action relative to abnormal emissions? No

If yes - list:

<u>Agency</u>	<u>Date</u>	<u>Action</u>	<u>Status</u>

- h. Are there any problems regarding abnormal emissions other than those covered above? No

If yes - describe: N.A.

Corrective actions (as appropriate) underway or planned: N.A.

SCD Environmental Audit Protocol

Part D - Air Pollution Control Program Review (Cont'd) ORIGINAL

Section 4 - Hazardous Air Pollutants

- a. Are any of the following "hazardous air pollutants" (40 CFR 61) emitted? Asbestos No Beryllium No Mercury Yes

If yes - do our emissions exceed the permitted levels?

Asbestos (from manufacturing) - no visible emissions\*  
(40 CFR 61.22(c))

Beryllium - 10 g/24 hrs.\* (40 CFR 61.32(a))

Mercury (from chlor-alkali cells) - 2,300 g/24 hrs. (40 CFR 61.50)

\*See regulations for alternative limits

- b. If any of the three hazardous air pollutants are emitted, has the source been registered (40 CFR 61.10)? Yes If yes - when? 5/11/73  
Were emission tests made and reported (40 CFR 12, 13 & 14) Yes  
If yes - when? 6/12/74

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- c. Are the requirements of 40 CFR 61.22(d) relative to demolition operations involving asbestos containing materials readily available to plant personnel who may be involved in such activities (Maintenance, Engineering & Purchasing)? Yes Have these requirements been complied with? N.A. Are there any planned demolition operations involving asbestos or asbestos containing materials? No

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



SCD Environmental Audit ProtocolPart E - Solid Waste Program Review (Cont'd)ORIGINAL  
(Red)

## a. (Cont'd)

If current or potential problems exist - indicate corrective measures (as appropriate):

Potential problems exist  
relative to the old unlined spent lime ponds.  
On-site trash disposal practices also pose a  
possible future problem. These potential problems  
should be studied to develop corrective measures  
as necessary.

b. If effluent treatment settling ponds are in use or planned, complete the following:

<u>Pond</u>	<u>Lining</u>	<u>Seepage Drains</u>	<u>Estimated Remaining Useful Life</u>
<u>Settling</u>	<u>PVC</u>	<u>Yes</u>	<u>Depends on solids</u>
			<u>build-up &amp; removal</u>
			<u>for improvement</u>
			<u>problems</u>

Comments:

SCD Environmental Audit Protocol

Part E - Solid Waste Program Review (Cont'd)

- c. Are regulatory agency permits required for current or planned permanent on-site impoundments or disposal of semi-solid or solid wastes? Yes (For new or modified disposal facilities)

If yes - list such permits that are presently held:

<u>Waste</u>	<u>Permit No.</u>	<u>Issuing Agency</u>	<u>Date Issued</u>	<u>Expir.Date</u>
<u>None</u>				

- d. Are there any required permits for on-site disposal of semi-solid or solid wastes that have not been obtained? No

<u>Waste</u>	<u>Means of Disposal</u>

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective measures (as appropriate) underway or planned: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SCD Environmental Audit Protocol

Part E - Solid Waste Program Review (Cont'd)

ORIGINAL  
(Red)

- e. Will semi-solid or solid wastes be generated by the NPDES compliance program treatment facilities? Yes If yes - how will they be disposed of? \_\_\_\_\_

Not covered by this review

Comments: \_\_\_\_\_

- f. Describe how discarded laboratory samples (gases, liquid, solids) are disposed of: Not covered by this review

Gases - \_\_\_\_\_

Liquids - \_\_\_\_\_

Solids - \_\_\_\_\_

Are the disposal methods for lab samples described above satisfactory? \_\_\_\_\_ If no - give corrective measures (as appropriate) underway or planned: \_\_\_\_\_

SCD Environmental Audit Protocol

Part E - Solid Waste Program Review (Cont'd)

ORIGINAL  
Date

- g. Are any liquid wastes disposed of by percolation into the ground?

Yes

If yes - discuss: ① Sanitary waste discharge from septic tanks ② Although not done properly, there appear to be some percolation of effluent into ground from old septic lines and pits.

List any corrective actions (as appropriate) needed: ① will be eliminated by installation of packaged secondary treatment unit. ② Problem is being evaluated. Advice of hydrogeological consultant will be secured. (Note: Geoply & Miller Inc. subsequently retained)

- h. Are there known chemical burial sites within the plant boundaries?

No

If yes - describe and discuss: No specific burial sites known to exist. There may be small amounts of various chemicals buried with trash.

Do any such burial sites pose current or potential problems? N.A.

If yes - describe and indicate corrective measures (as appropriate):

SCD Environmental Audit ProtocolPart E - Solid Waste Program Review (Cont'd)ORIGINAL  
(Red)

h. (Cont'd)

- i. Is there any indication of ground water contamination resulting from our operations? Yes. Contamination of storm water runoff? No

If yes to either or both - discuss: Refer to item j on possible penetration into ground water from old spent lime ponds.

Describe corrective measures (as appropriate): To be determined after evaluation of situation using assistance of hydrogeological consultant.

- j. How is trash (non-chemical solid waste) disposed of? Trash Dump (on-site)

Any problems? No If yes - discuss: Although there are no current problems with the on-site Trash Dump, its operation should be up-graded to that of a sanitary land or the trash disposed of off-site in an approved facility

SCD Environmental Audit ProtocolPart E - Solid Waste Program Review (Cont'd)ORIGINAL  
(Red)

j. (Cont'd)

Corrective actions (as appropriate): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

k. Are semi-solid, solid or liquid process wastes disposed of off-site?

Yes

If yes - complete:

<u>Waste</u>	<u>Hauler</u>	<u>Disposal Site</u>	<u>Permit No. &amp; Issuing Agency</u>
Spent Sulfuric	Chem-Dyne	Freemont, Ohio	OEPA LTR D-100 3/3/76
CMP Waste Water	Chem-Dyne	Freemont, Ohio	
CMP Still Bottoms	Chem-Dyne	Hammitt, Ohio	

Have copies of disposal site environmental permits been obtained?

Partially\* Do these permits indicate that the disposal sites involved are authorized to handle the type wastes we are sending them?

In general - yes. However, there are still some aspects of the situation which are unclear.

\* LTR of 7/2/77 from C.A. Whitten of Chem-Dyne  
Have we inspected the disposal site(s)? No To C.A. Whitten

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit Protocol

ORIGINAL

Part E - Solid Waste Program Review (Cont'd)

1. Are there any known or potential problems involving disposal of solid, semi-solid or special liquid wastes other than those covered above? No

If yes - discuss: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective measures (as appropriate): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SCD Environmental Audit ProtocolPart F - Drinking Water Supply ReviewORIGINAL  
(Red)

- a. Does any portion of the plant's drinking water supply come from on-site wells or surface water sources? No If yes - have we begun to monitor for coliform bacteria and nitrate(N)? N.A. and turbidity (if surface source)? N.A.  
If yes - when? N.A.

Note: 40 CFR 141 requires monitoring to commence June 24, 1979.

- b. If monitoring of on-site drinking water supplies has begun - list:

<u>Parameter</u>	<u>Max. Level Found</u>	<u>No. of Tests Run</u>	<u>Sampling Freq.</u>
<u>Coliform Bacteria</u>			
<u>Nitrate(N)</u>			
<u>Turbidity</u>			

- c. Are there any known or potential problems associated with the on-site drinking water supply? N.A.

If yes - discuss:

SCD Environmental Audit Protocol

Part F - Drinking Water Supply Review (Cont'd)

ORIGINAL  
(Red)

c. (Cont'd)

Corrective actions (as appropriate) underway or planned: N.A.

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SCD Environmental Audit Protocol

Part G - Marine Transfer Operations Review

ORIGINAL  
(Red)

The SCD Environmental Audit Protocol for Marine Transfer Operations is being prepared separately. It will be issued as a supplement to this Manual.

## SCD Environmental Audit Protocol

Part H - Action List of Review Team RecommendationsORIGINAL  
(Red)

<u>Page</u>	<u>Item</u>	<u>Recommendations</u>	<u>Status</u>
5	5	Environmental training of hourly personnel should be intensified.	
8	j	Effluent ditch area upstream of monitoring weir should have silt removed.	
17	c	Plant environmental personnel should increase their familiarity with applicable state water pollution control laws and regulations.	
27	f	Assure all sanitary wastes are sent to the new packaged secondary treatment unit or are otherwise adequately handled.	
30	e	Check accuracy of flow measuring weir twice per year by dilution metering or other appropriate means.	
31	f	Keep records on calibrations of flow measuring devices.	
31	h	Keep records of any maintenance work done on effluent sampling devices.	
35	g	A copy of 40 CFR 136 and all three analytical references cited by those regulations should be kept on hand.	
37	n	An analytical quality control program based on standard samples should be initiated.	
41	b	The existing North Plant oil SPCC plan should be amended to include South Plant transformers.	
44	i	Secondary containment of oil-containing transformers should be investigated.	
46	n	Plant plans to install oil boom in process sewer should be implemented.	

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(Red)

SCD Environmental Audit Protocol

Part H - Action List of Review Team Recommendations (Cont'd)

<u>Page</u>	<u>Item</u>	<u>Recommendations</u>	<u>Status</u>
47	r	Outboard motor for plant boat should be test-run at least quarterly. A launching ramp for the boat should be provided.	
47	s	North plant contact with local containment and cleanup contractor should be expanded to cover South Plant.	
48	u	An oil spill response team should be formed and trained.	
52	e	Study to determine specific secondary containment needs and priorities should be completed.	
53	g	Administrative controls covering the drainage of liquids collected within diked areas should be promulgated.	
53	h	Administrative procedures and adequate spill prevention and control facilities should be developed for chemical loading/unloading locations.	
54	k	Means of minimizing possibility of chemical discharges to clean water sewer systems (Outfall 002) should be studied.	
55	l	Environmental training of maintenance personnel should be intensified.	
56	n	Maintenance program to minimize drips and leaks from pumps should be improved.	
57	p	All sewer entry points and manholes should be clearly identified.	
57	q	Copies of an updated sewer map should be readily available.	
60	d	Means of minimizing possible problems caused by old unlined ponds should be studied.	

SCD Environmental Audit ProtocolOriginal  
(Red)Part H - Action List of Review Team Recommendations (Cont'd)

<u>Page</u>	<u>Item</u>	<u>Recommendations</u>	<u>Status</u>
60	e	Blowdown from CMP water rack should be on a controlled basis.	
63	f	Possible immunization needs of those involved with treatment of sanitary waste should be determined.	
78	w	An air pollution episode plan should be prepared as soon as possible.	
82	b	An abnormal emission prevention control and countermeasure plan should be prepared.	
87	a	All on-site disposal of solid or semi-solid waste should be reviewed.	

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